eurostat news

SPECIAL NUMBER 1982

SEMINAR ON THE MEASUREMENT OF EMPLOYMENT AND UNEMPLOYMENT

Luxembourg, 7 – 10 December 1981

eurostat news

SPECIAL NUMBER 1982

Seminar on the measurement of employment and unemployment

Luxembourg, 7-10 December 1981

Statistical Office of the European Communities
L-2920 Luxembourg-Kirchberg, rue Alcide De Gasperi, Bâtiment Jean Monnet
Tel. 43011 Telex Comeur Lu 3423

This publication is also available in the following languages:

DE ISBN 92-825-3259-3
FR ISBN 92-825-3261-5

Luxembourg: Office for Official Publications of the European Communities, 1983

ISBN 92-825-3260-7

Catalogue number: CA-35-82-990-EN-C

Printed in the FR of Germany

Foreword

Eurostat, the Statistical Office of the European Communities, in collaboration with the statistical services of the Member States, provides a wide range of statistics on employment and unemployment. In recent years the amount of information made available by Eurostat has been steadily extended and improved in quality and timeliness. Meanwhile a crisis has arisen with a level of unemployment of over 10 million having been reached by the end of 1981, which has increased the needs of users of the statistics both in the institutions of the Communities and in the Member States. These needs have led to many varied and sometimes conflicting demands for new statistics and analyses.

In order to take users' views into account in formulating its policy for the further development of Community labour market statistics, Eurostat organized a seminar in Luxembourg in December 1981. Invited to the seminar were policymakers from the Commission and from member governments, labour market statisticians, academic and other researchers and representatives of the trades unions and employers' associations. Professor J. SEXTON of the Institute for Economic and Social Research, Dublin, kindly accepted the chairmanship of the seminar.

A number of invited and contributed papers were presented, each followed by a discussion opened by a nominated member of the seminar.

The résumé of the seminar contained in Part A, has been prepared by Dr Heinz WERNER (except A I and A V). Space does not permit reporting of the discussions in full but the contributions of the participants not mentioned here are gratefully acknowledged: their value to the seminar was considerable. Part B gives the papers as presented at the seminar. Authors had, however, the opportunity to review their contributions before publication. Part C lists statistics on employment and unemployment currently collected by Eurostat.

Contents

INTRODUCTION 9

PART A: SUMMARY OF THE CONTRIBUTIONS AND DISCUSSIONS 11

I - Employment and unemployment - statistics conducted by the Statistical Office of the European Communities 12

II - Statistics for Community policy formation: statistical needs for Community employment, labour market, economic, social and regional policy 14

Summary of the contributions

1. Statistical problems of an economic labour market analysis (P. ZANGL, Commission of the European Communities, DG II, Brussels) ... 14

2. The use of employment and unemployment statistics in social policy (D. WHITE, Commission of the European Communities, DG V, Brussels) ... 15

3. Statistical needs for the development of Community regional policy (B. F. McNAMARA, Commission of the European Communities, DG XVI, Brussels) 16

4. Discussion on point II: statistics for Community policy formation 17

III - Utilization of the potential of statistics 19

1. Monitoring the labour market: a proposal for a comprehensive approach to official statistics (A. MADDISON, University of Groningen) 19

2. Towards an employment account: stocks and flows determining the labour market (L. REYHER, Institut für Arbeitsmarkt- und Berufsforschung, Nürnberg) 22

3. Volume and duration of work 23

(a) Methodology for calculating the volume of work (W. P. LEUNIS, C. G. VERHAGE, Centraal Bureau voor de Statistiek, Voorburg) 23

(b) Present availability and future improvements needed in statistics from labour force surveys
(J. ZIGHERA, University of Paris-Nanterre) 25

4. Estimation of gross flows from the Canadian labour force survey
(I. MACREDIE, Statistics Canada, Ottawa) 26

5. Forecasting employment: the use of available statistics as a basis for forecasting employment in the Community
(G. McLEOD, Gwilym JENKINS & Partners Ltd, Lancaster) 28

IV - Provision of better statistics: the views of statistical services on frequent user concerns 30

V - Summary and conclusions 34

PART B: ORIGINAL TEXTS OF THE CONTRIBUTIONS TO THE SEMINAR .. 37

1. *Statistical needs for Community employment, labour market, economic and social policy* 38

1.1. Statistical problems of an economic labour market analysis
(P. ZANGL, DG II - Economic and Financial Affairs) 38

1.2. The use of employment and unemployment statistics in social policy
(D. WHITE, DG V - Employment, Social Affairs and Education) 47

1.3. Statistical needs for the development of Community regional policy
(B. F. McNAMARA, DG XVI - Regional Policy) 57

2. *Utilization of the potential of statistics* 61

2.1. Monitoring the labour market
- A proposal for a comprehensive approach to official statistics
(A. MADDISON, University of Groningen) 61

2.2. Towards an employment account
- Stocks and flows determining the labour market
(L. REYHER, Institut für Arbeitsmarkt- und Berufsforschung) (IAB) .. 74

2.3. Volume and duration of work
- Methodology of calculating the volume of work of employees
(W. P. LEUNIS and C. G. VERHAGE, Centraal Bureau voor de Statistiek) 83

2.4. Volume and duration of work
- Present availability and future improvements needed in statistics from labour force surveys
(J. ZIGHERA, University of Paris-Nanterre) .....

2.5. Estimation of gross flows from the Canadian labour force survey
(I. MACREDIE, Statistics Canada) 97

2.6. Forecasting employment
- The use of available statistics as a basis for forecasting employment in the Community
(G. McLOED, Gwilym JENKINS & Partners Ltd) 106

PART C: EMPLOYMENT AND UNEMPLOYMENT - STATISTICS CONDUCTED BY THE STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES 115

LIST OF PARTICIPANTS 145

Introduction

With the growth in the number of people without work, unemployment has become one of the main problems of the Commission of the European Communities as well as in Member States. In order to gain a proper insight into the problem, familiarity with the extent and structure of unemployment is essential. The Statistical Office of the European Communities (SOEC) has long had a number of working parties dealing at technical level with the management, improvement and comparability of labour market statistics. It is the intention that this seminar, by bringing together not only the producers of the statistics but also the users and academics, should transcend the technical issues which frequently occupy the working parties. The seminar is the fourth in a series which have taken place over the past few years. Previous seminars have dealt with household sampling, data banks, earnings and labour costs. The topic of the next seminar is to be regional statistics.

Over the years the labour market has become increasingly complicated, characterized by constant change and varying patterns of behaviour which need to be followed up and analysed. Part-time work - to mention but one changing feature of working life - plays a far greater role today than it did in the past. In view of the greater variation in working hours it is becoming more and more necessary to abandon the per capita approach and to think in terms of quantities of labour. This applies, for example, to productivity calculations, which are based on the number of hours worked rather than on the number of employees, and to the measurement of labour utilization, which is based on the volume of work, i. e. the total number of working hours. A further aspect which has become increasingly important for an understanding of the labour market is the distinction between stock and flow data. Up to now labour market statistics have largely been based on stock data. However, the structure of unemployment may be quite unconnected with inflows and outflows. Ones interpretation of the unemployment situation will depend on how one looks at it. Knowledge of these flows into and out of unemployment also enables one to draw inferences about the duration of unemployment. This approach can provide new insights into labour market trends and contribute to a more effective labour market policy.

Statisticians too must rise to the challenge and attempt to cast light on phenomena about which as yet little is 'known'). This is also the objective of this seminar. It should give the various groups an occasion to exchange their views and highlight new problem areas or gaps in knowledge while contributing to the development of a consistent and comprehensive system of labour market statistics at national and Community level.

Part A:
Summary of the contributions and discussions

I - Employment and unemployment - statistics conducted by the Statistical Office of the European Communities

1. Eurostat has been working for 23 years on the production of useful employment statistics for Community purposes. The documentation for the seminar included a detailed list of all the statistical data on employment and unemployment available from Eurostat (see Part C).

2. The adoption of international recommendations and classifications has always been a central feature of Eurostat's work in the field of employment statistics, on the basis that this will avoid duplication of work by national statistical services and make for comparability with countries outside the Community.

It is not always easy to attain or ensure such parallelism because Community statistics must be tailored to meet the policy-making needs of the Commission. These often require a greater degree of precision than that provided for in the international nomenclatures which cater for a wide range of countries at different stages of development.

3. One of the major preoccupations of the Statistical Office has always been improvement in the comparability of statistical data from different Member States. We are sometimes told that we take this problem too seriously and that trends from unharmonized statistics can form a basis for comparison. This may be so but comparisons for policy purposes are not, and cannot be, simply about trends. It is, therefore, our duty to continue to work closely with the national statistical services towards further improvements in the comparability of employment and unemployment statistics.

The need to establish as uniform a system as possible of employment statistics in the Member States of the Community was also stressed by the Council of the European Communities in 1977, when it endorsed the broad lines of the programme of employment statistics laid before it and confirmed the importance which it attached to the implementation of the programme.

4. A central point in the Council's programme is the regular conducting of Community labour force sample surveys, so as to ensure a high degree of comparability between the statistics of the Member States or introduce a degree of comparability in respect of a number of aspects which have never previously been comparable.

On the basis of this Council decision large-scale sample surveys of households were taken in 1973 and have since been conducted at two-yearly intervals up to 1981. Each survey has covered over half a million households.

These Community sample surveys are compromises between the practical and financial capabilities of both the Member States and the EEC. Moreover, the results are affected by the frequent imprecision of international definitions and by differences in national practice. The need to avoid encroaching on existing national surveys is an important factor, as is the extraordinarily difficult problem of assimilating concepts not in common use at national level and converting them into appropriate questions.

Despite these difficulties and compromises, however, it should be stressed that the regular labour force sample surveys conducted by the Member States constitute a unique instrument for comparisons between the countries. Moreover, although the survey was at first regarded as something of an imposition, most Member States now also use it for national purposes, with the result that it is frequently the only statistical source for a number of aspects of employment. For example, it provides a whole range of opportunities for analysing the employment of women or young persons. However, the user should not be misled by the wealth and unique nature of the source into forgetting the possibilities and limitations of the survey and expecting absolute accuracy or comparability.

A thorough review of the EEC questionnaire is planned for 1983. Apart from simplifying the questionnaire wherever possible, the main aim will be to achieve a clearer delimitation of the individual population groups. Given the present employment situation, we shall obviously be paying particular attention to unemployment. At the same time we shall be examining whether these sample surveys can fully meet the requirements of regional and social policy which was mentioned earlier. Although there will be no fundamental changes in the 1983 survey, nor, in all probability, in subsequent surveys, there is no reason why consideration should not be given to conducting the survey more frequently.

5. With regard to other employment statistics published by Eurostat, following a recommendation in the programme on employment statistics, annual statistics are now compiled on employees in employment by NACE classes. These have been available for industry for several years. Although a number of gaps remain to be filled, publication of results for the services sector will start next year.

The Statistical Office has become increasingly involved in the production of statistics of employment of special population groups, including women, young persons, and migrant workers (with their rights to freedom of movement and establishment). The Office is also being asked for statistics on cultural workers, whose social situation the European Parliament would like investigated. It is evident that there are great difficulties to overcome before comparable statistical data for these groups can be produced.

It is also clear from the comments of colleagues from other Directorates-General and from some of the seminar documents that the objective of harmonizing the statistics on hours of work has yet to be achieved. Despite all the anticipated difficulties, we see the improvement of these statistics as one of our most important tasks for the immediate future.

6. Another central concern of the Statistical Office in the field of employment statistics will be to make the statistics more accessible to users.

Better accessibility means, firstly, endeavouring to document more accurately the quality of the statistics transmitted or published. Next year a series of publications on methods and definitions will be appearing: the first concerns definitions of registered unemployment.

Further projects include studies on the statistics of industrial disputes, duration of employment, and vacancies, as well as annotated bibliographies of the sources of statistics on hours of work and on earnings.

Above all, however, better accessibility also means developing efficient data banks which, we hope, will give faster and improved handling of the available data.

This theme, along with the question of the punctual supply of data, is the subject of the final item on the agenda.

II - Statistics for Community policy formation: statistical needs for Community employment, labour market, economic, social and regional policy

Summary

1. Statistical problems of an economic labour market analysis

(Peter ZANGL, Commission of the European Communities, Directorate-General II - Economic and Financial Affairs, Brussels)

With unemployment mounting, the statistical problems of an economic labour market analysis are taking on increasing importance. Since other aspects of the matter are dealt with in other papers, the focus here will be on the economic aspects:

LABOUR MARKET DEVELOPMENTS

Detailed information on the volume of work and on the structure of the gainfully employed is needed before any analysis can be made of the labour market and its functioning.

SUPPLY OF LABOUR

During the 1960s it could be broadly assumed that the aggregate labour supply equalled the numbers employed plus the unemployed. With increasing underemployment and mounting unemployment, however, this identity looks further and further removed from reality. An assessment therefore must be made not only of the present labour supply and its utilization but also of the future potential.

UNEMPLOYMENT STATISTICS

The unemployment figure, which indicates the number of persons in the labour force for whom there is no effective demand under the market conditions at a particular time, is the key indicator of the extent of underemployment. The general impression is that the labour market statistics are compiled more for social policy reasons than with an eye to economic policy, an impression evidenced by the predominance of 'social' criteria (sex, socioeconomic group, etc.) over 'economic' criteria (market developments, flow figures) in the unemployment statistics. To mention another example, cost aspects receive less attention in the unemployment statistics than the so-called problem groups. This is not a criticism aimed primarily at statisticians or politicians in the social field, since without them one would probably have very little in the way of statistics. It is directed at economists who until the early 1970s were neglecting the economic aspects of labour market analysis.

Overall, then, statistical improvements appear desirable in two main areas. Firstly there are the statistics on the volume of work, and here substantial progress must be made in providing information on the number of hours worked. Secondly, reliable figures should be compiled for the present and future supply of labour. In addition, time and resources permitting, there is still room for improvement in unemployment statistics – e. g. comparable percentages also for particular groups of persons, duration of unemployment.

2. The use of employment and unemployment statistics in social policy

(David WHITE, Commission of the European Communities, Directorate-General V – Employment, Social Affairs and Education, Brussels)

Two particular uses of statistics can be distinguished:

(i) Those used for monitoring, whether in assessing trends in unemployment/employment or in managing the use of instruments for influencing the labour market such as the Social and Regional Funds at Community level.

(ii) Those used in basic studies and in the quantification of policy proposals. In this connection, it is hard to predict data needs in advance, both because analysts are likely to want data to fit their particular models and because the evolution of the policy debate is hard to foresee. What is needed is a comprehensive and yet flexible statistical instrument.

The following areas might be considered as statistical priorities for policy-makers:

Filling the gaps

(i) more detailed data are required on youth unemployment and on unemployed migrants;

(ii) regional cover of comparable unemployment figures and employment data;

(iii) more statistical information on the service sector.

Extending the scope

(i) preparation of a common Community classification of skills;

(ii) detailed data on hours of work.

Resolving conceptual issues

As a first stage, it is important to have a clear statement of why series from different sources differ; as a next stage, it is desirable to print alternative series next to each other in one

statistical publication; ultimately, it is desirable to eliminate differences or to provide the information that will enable the user to pass from one series to another.

Building for the future

The labour force sample survey is a comprehensive and flexible statistical instrument for keeping track of employment and unemployment.

From a policy-orientated user's viewpoint many of the problems could be overcome by making the survey annual. Assuming that the data could be processed within the year, this would take care of the problems of regularity and recency. Their reliability would be easier to assess in the context of an annual series, and if these improvements were carried out the results would be more rapidly available. Reconciliation with other population estimates would also be easier if annual series were being compared.

3. Statistical needs for the development of Community regional policy

(B. F. McNAMARA, Commission of the European Communities, Directorate-General XVI - Regional Policy, Brussels)

This paper sets out to specify the Commission's present requirements regarding labour force statistics, as a tool for promoting the development of Community regional policy.

The tasks comprise:

(i) The drawing up of the periodic report on the social and economic situation of the regions of the Community.

The first periodic report contained in Chapter 3, labour market, an analysis of the trends and structure of unemployment in NUTS level II regions of the Community (NUTS - Nomenclature des unités territoriales pour la statistique: Nomenclature of Territorial Statistical Units). On the basis of the periodic report, the Commission prepares guidelines and draft legislation on the priorities for Community policy.

(ii) Coordination of national regional programmes and the periodic review of national regional aid systems.

(iii) Assessment of the regional impact of different Community policies and the development of specific Community actions financed from the non-quota section of the Regional Fund.

These tasks determine the need for regional statistics at level III of NUTS. This applies in particular to employment and unemployment. As regards the structure of employment there is a need for more detailed information on the service sector. At the current time, only limited information is obtainable from the labour force sample survey, whose infrequency

furthermore prevents the extraction of time series, which are needed to estimate trends. It follows that the labour force sample survey should be held more frequently.

Also essential to a consistent Community policy is comparability. This is particularly critical in the case of unemployment figures, which are based on the number of persons registered as unemployed with the placement offices.

4. Summary of the discussion on point II: statistics for Community policy formation

During the discussion one participant made the somewhat provocative general comment that these contributions, all of which basically stressed the need for better comparability and for more detailed statistics, were only to be expected. The question, however, was whether all these data were really essential. After all policy-makers were basically interested in only two aspects: the direction of a trend and whether a particular phenomenon was to be taken seriously or not. For example, absolute unemployment figures were not the same in France as in Belgium, but the interesting question was whether the trend was identical. A further question was the importance which individual countries attached to unemployment. Indicators could be developed to this end (measures of relative severity).

The other participants rejected these arguments. Statisticians were not responsible for setting political priorities. For example, how could a statistician decide whether unemployment among women was more relevant than unemployment among young people? Furthermore, problems changed over time. As a rule the statistics could not be adapted at short notice to suit changing conditions and approaches. A certain amount of time was needed to establish and conduct surveys and, likewise, to phase them out. At Community level there was a growing need for statistical information on the part of the various European institutions, such as the Council, the Parliament and the research institutes. The list of desiderata was a long one. What criteria should be chosen as a basis for decision-making? An additional difficulty at Community level was that - in contrast to the situation in the Member States - there were no adjacent areas from which the SOEC could derive additional information which might be required for its statistics. For example, when the need arose for more information on the level and structure of hours of work, it rapidly found that although the Community labour force sample survey provided certain data, it was generally necessary to fall back on national sources. However these national statistics were not standardized and it was difficult or impossible to compare them at EC level.

The participants also discussed the *Community labour force sample survey.* In view of the differences in the national series on employment and unemployment it was suggested that the labour force sample survey should be expanded so as to constitute the main source of information on the Community labour market. It was argued that - in view of the fact that the sample surveys provided the most comprehensive statistics - the national series should be linked to and integrated with these statistics. Care should be taken to avoid presenting the same statistical data (e. g. employment in manufacturing industry) based on different national series as these were derived from different national sources.

One problem with the Community labour force sample survey was that it was based on national surveys. Each country used its own questionnaire which could incorporate national peculiarities and ways of thinking. It was not always easy to recognize such differences between the Community survey and the national surveys. In many cases national 'filters' were built in before the data were evaluated and transmitted to the SOEC thus distorting the results. To improve comparability, closer attention should accordingly be paid to these differences in future and clearer concepts and questionnaires should be developed.

There was wide agreement among the participant groups that the Community labour force sample survey should be conducted more frequently than at present. The feeling was that the two-yearly interval used at present was clearly too large. If one also considered the time it took to evaluate the survey, it became obvious that the results could not be used for analysing short-term economic trends. Nor was it easy to base policy decisions – e. g. allocations in connection with the Social or Regional Fund – on such data, as the relevant statistics were three to four years out of date. This might lead to misallocation of financial resources which constituted costs from a policy point of view. As regards costs, it was also argued that if the sample survey were carried out more frequently – e. g. every three or six months – the necessary infrastructure could be made permanent and would not have to be dismantled and reconstructed on each occasion, something which inevitably led to friction and hence to costs. Thus, holding the sample survey more frequently did not mean that costs would automatically rise in proportion. Apart from improving topicality a more frequent survey would make it possible to follow up particular groups over a certain period. This would improve comparability over time and the quality of the statistics.

The discussion showed that the participants broadly agreed with the arguments set out in the seminar papers on the dearth of information in certain areas: to get a better grasp of labour market trends, the stock statistics had to be supplemented by flow data, which on the whole were missing, e. g. as regards unemployment. There was also a need for better employment statistics at regional level. Further gaps concerned hours of work, mobility, data on potential employment, including the hidden labour force, information on jobs and qualifications and the existence and significance of the 'hidden economy'.

III - Utilization of the potential of statistics

1. Monitoring the labour market - a proposal for a comprehensive approach to official statistics

(Agnus MADDISON, University of Groningen)

Summary

All EC Member States publish official unemployment figures. However, these are only a partial measure of labour slack. Unemployment can be significantly mitigated by reductions in labour supply, for example, to the return of immigrants, policy-induced withdrawals from the labour market into education, training or retirement, and reduction in time worked.

In view of these problems, a comprehensive approach to labour market analysis is called for in order to improve the comparative analysis of the labour market situation in EC countries and of the efficacy of policy. This approach comprises three components:

MONITORING OF THE LABOUR MARKET

The annual accounts proposed here comprise data from various sources, reflecting trends in population, employment and working hours. If the individual components are multiplied the result is the overall labour input required to produce the GDP. Specifically, the following data are needed:

(i) activity rates by sex and further disaggregations if possible;

(ii) employment and unemployment rates by sex and further disaggregations if possible;

(iii) annual hours worked per person.

It should be noted here that acquaintance with these data can contribute very substantially to productivity analysis, as output can be related to the number of hours worked.

USE-OF-POTENTIAL ANALYSIS

Once the monitoring accounts are available, the material can be used to measure labour slack. Basically, this involves a comparison between the actual situation in a given year and that which would have prevailed if full use had been made of labour potential. The results depend to a considerable extent on assumptions concerning full employment conditions. Specifically, the assumptions involve estimates of potential population, which comprises employed persons, the unemployed, returned migrants and the 'hidden' labour force. This

final category includes persons who although they are not registered as unemployed would presumably take a job if the labour market situation were better. To estimate the potential number of working hours it is also necessary to take into consideration trends in working hours per person.

BUDGETS FOR MANPOWER AND EMPLOYMENT POLICY

Manpower and employment policy measures are often financed from different departments and this adds to the difficulties involved in assessing efficacy and comparing the Member States.

A definition and classification of manpower and employment policy is therefore being proposed with a view to preparing an overall manpower and employment policy budget and to quantifying the effects of manpower and employment policy measures on employment.

Discussion

The ILO representative considered that the proposal did not go far enough in the integration of different statistics.

Different concepts were needed depending on whether one adopted a social or an economic approach.

From the economic point of view employment was a means towards obtaining an income or towards producing value in the form of goods and services. As regards the labour market this gave rise to questions concerning, for example, supply and demand, i. e. labour slack, which included unemployment.

Social aspects of employment had to be seen in connection with human dignity, status questions, group membership, etc.

The differences could be indicated in an example:
Labour slack might take the form of short-time work, early retirement, or discouraged withdrawal from the labour market, i. e. when unemployed persons abandoned the search for work because they believed that they had no hope of finding a job. From a social point of view the latter event was more serious than short-time work or early retirement. In this case the persons involved still retained a certain social status because they could still feel that they belonged to a group, whereas that did not apply to discouraged workers.

Taking the argument a step further one might use the individual's wishes as a point of departure. In certain cases economically identical events might have different social consequences: e. g. a worker who enjoyed his job might have no wish to be pensioned off early whereas discontented workers might be quite happy with such an arrangement.

Unfortunately there was no intellectual framework or macrotheory with which to analyse the social aspects. In the economic field the situation was somewhat better but the existing concepts were not always applied. For example, gross domestic product was expressed in terms of (price-adjusted) money quantities. As regards labour input - which was essential in the creation of the social product - the discussion still continued as to whether individuals or

hours worked should be selected as units. However, neither labour input nor output (i. e. social product) consist of homogeneous units of quantity; they were qualitatively distinctive. In calculating domestic product this difference in quality was assessed via prices. The aim should be to adopt this approach for manpower input as well and to present gross wage sum in terms of constant wages.

None of the participants disagreed with these comments in principle. However, the point was made that MADDISON'S proposal could not be expected to answer all social and economic problems connected with the labour market. For example, little could be said concerning the problem of segmentation. However, in MADDISON'S paper the problems which had occupied labour statisticians in many countries for a long time had been presented in a certain context: it combined labour market data with data relating to population and economic statistics incorporating data on hours worked as well. In this way data on the same phenomena, but deriving from a variety of sources, were combined in one statistical system. The systems approach in statistics had been developed in the mid-1960s. In this connection two trends had to be distinguished. In one approach, data relating to the same subject matter but taken from different statistics were processed jointly, whereas in the other data from different surveys relating to the same statistical units were processed jointly, as for example in the agricultural report, in which data on the workforce, land use and livestock gathered at different points in time were evaluated in relation to holdings.

There was no doubt that more frequent labour force sample surveys would help to resolve the statistical problems involved; what was needed was a method of rotation, i. e. part of the sample population would have to be interrogated at least twice so as to acquire more accurate data on flows in the labour market. The extent to which one should also tackle other problems in this context - such as estimates concerning what labour input there would be if there were no sickness absence or no hidden labour force was a matter for detailed study.

The other points in the discussion related to technical problems or questions of interpretation, e. g. the problem of determining annual working hours on the basis of point-in-time surveys, taking public holidays, sickness and various age limits into consideration. In many cases one would have to opt for a pragmatic solution, as the required data were often unavailable; moreover, difficulties could also arise in comparing data, as the calculation of hours worked might be based on employed persons (France, Federal Republic of Germany) or on the number of workplaces (United Kingdom). This was countered with the argument that the difference between the two concepts was unlikely to be very great, as the results of the Community labour force sample survey showed that multiple job holding was not frequent.

2. Towards an employment account - stocks and flows determining the labour market

(Lutz REYHER, Institut für Arbeitsmarkt- und Berufsforschung, Bundesanstalt für Arbeit, Nürnberg)

Summary

The statistical basis of analyses and forecasts consists very largely of figures relating to stocks and their net variations. But these reflect only a part of reality, and in particular provide no information as to the extent, structure and course of the events actually occurring in the labour market, which in most cases appear only in the form of stock figures. To remedy this, analyses should also take into account statistical information on flows. Thus, for example, if the total number of elderly unemployed persons dropped, widely differing conclusions would have to be drawn, depending on whether:

(i) the number of persons coming on to the register had remained unchanged but the number of persons leaving it had increased because they had found work or retired;

(ii) the number of persons leaving the register had remained unchanged but the number of persons coming on to it had dropped, because there were fewer people in the age group concerned, or because protection against unfair dismissal had been improved.

It is the aim of the Labour Force Account (LFA) to produce consistency - i. e. to combine the stock and flow data to form a plausible, comprehensive and detailed overall picture. The LFA consists of a series of 'aggregates' or 'accounts', relating to a given date or period of time, which cover all the persons in the same status category with regard to economic activity.

Thus for the purposes of the LFA, flows are changes in the individual's employment status during a given period of time.

In the version of the LFA so far worked out, the whole population of the Federal Republic of Germany has been divided into 10 status categories:

1. children of preschool age
2. school education
3. training in firms
4. persons in employment
5. registered unemployment
6. 'hidden' labour force
7. persons receiving further vocational training (under the German Work Promotion Act)
8. persons unable to work
9. retired persons
10. other persons not in the active population.

Each year the LFA shows the initial number of people in each of these categories, the numbers of all the persons coming from other 'accounts' or persons who have transferred to other 'accounts' and the total number at the end of the year.

The design and content of the LFA both require improvement: the most important thing is to effect a shift from 'cases' to 'persons', i. e. eliminate 'double counting' by ceasing to take into account each occasion on which an individual changes status. The diagnostic value of the LFA would also be considerably increased if the duration of each change of status could

be shown. Finally, there are various types of data on flows. On the one hand, they describe (as in the LFA) all flows occurring between the various status categories within a specific period of time. On the other hand, they might be able to provide a statistical representation of reality by indicating changes in the status of individuals or identical groups of individuals (cohorts) during a reference period.

Discussion

The idea and the attempt to develop a Labour Force Account which would link stocks and flows in the labour market met with widespread approval. Some reservations were expressed as regards the reliability and precision of the data. In particular it was pointed out that the official statistics had to produce 'genuine' figures based on countable phenomena.

As opposed to this it was pointed out that the LFA was a first step and that absolute accuracy could not be the prime objective at this stage. Moreover in many cases absolute accuracy was not essential for practical manpower policy. It was enough to indicate orders of magnitude. The advantages of a consistent LFA for a better understanding of how the labour market functioned far outweighed the occasional inaccuracy which might still crop up. Many manpower policy measures were targeted towards flows and were aimed at encouraging or preventing trends or flows (e. g. aids to integration, mobility allowances, early retirement, etc.). To estimate the effect of such measures it was necessary to know the flows.

The work on the LFA had revealed certain statistical gaps which had first become apparent when an attempt was made to link flows and stocks. This knowledge could be used in revising the statistical information system, setting priorities and developing a new or revised approach.

The participants then discussed a number of proposals on how to resolve or attenuate the remaining problems affecting the LFA. These included multiple job holding, flows between the two observation dates, duration of the reference period and the type of presentation, which might also be in the form of a matrix. In this connection many participants stressed the value of longitudinal studies and - in the sample surveys on employment - retrospective questionnaires or repeated interrogation of the same group, as was possible with rotating samples.

3. Volume and duration of work

(a) METHODOLOGY FOR CALCULATING THE VOLUME OF WORK

(W. P. LEUNIS, C. G. VERHAGE, Centraal Bureau voor de Statistiek, Voorburg)

Summary

This paper develops a methodology which can be used to calculate the volume of labour of employees on the basis of data taken from the harmonized statistics and the Community

surveys. The methodology is confined to measurement of the volume of labour in terms of quantity, with the possibility of extending it to incorporate qualitative data on the volume of labour.

To make the calculations it is necessary to create a link between data on the workforce and on the volume of work.

To this end one must draw on data from surveys concerning both private households/individuals and enterprises.

With the help of an eclectic method (selective combination of statistics) in which - depending on the type of information - data are selected from private households, individuals or enterprises, a nucleus of consistent information is developed within the broad system of labour statistics.

This nucleus includes interrelated data on the workforce and on jobs broken down by economic sector.

On the basis of international guidelines and proposals, the volume of labour is defined as the product of the number of jobs and the number of hours worked.

Depending on the purpose to which the calculations of the volume of labour are put, a distinction should be made between working hours agreed upon in labour contracts, hours actually worked and hours paid.

The paper shows how to calculate the volume of labour for each of these three categories. It also indicates the changes required in the relevant statistics in order to apply this method of calculation.

In all cases the data are available from harmonized statistics and from the Community statistics.

Admittedly not all of the suggested changes are easy to put into practice. In order to create a consistent system of labour statistics, however, one must set one's sights very high.

Discussion

The well-researched paper by LEUNIS/VERHAGE on the calculation of the volume of work met with general approval, although it was pointed out that difficulties would crop up in implementing the proposed improvements to the various Community statistics. Naturally the requirements would vary from one Member State to another and each case would have to be examined individually. It would be useful to have an inventory of sources for each Member State against which one could examine the possibilities of improvements.

Some participants - e. g. the Irish delegation - had reservations as to the value of calculating the volume of work, especially when one took into consideration the considerable effort involved. However, the overwhelming majority and the participating groups stressed the need for information on the volume of labour for purposes of employment policy and for insight into labour market trends in connection with - for example - questions concerning productivity and competitiveness and the measurement of use-of-potential.

In the discussion the participants reviewed the pros and cons of surveys of enterprises and of household/individual questionnaires in measuring hours of work. Whereas the monthly sample surveys of households in Canada had been quite successful, the participants were more sceptical as to the viability of such an approach in Europe under present conditions. Accordingly it would remain necessary to draw on the results of surveys of enterprises in order to determine the volume of labour, as proposed by LEUNIS/VERHAGE.

(b) PRESENT AVAILABILITY OF AND FUTURE IMPROVEMENTS NEEDED IN STATISTICS FROM LABOUR FORCE SURVEYS

(Jacques ZIGHERA, University of Paris-Nanterre)

Summary

In studies on production, productivity, work organization, etc. the emphasis is not on the working week - the normal unit in the sample surveys - but on the number of hours worked annually. Bearing this requirement in mind, the paper develops a number of proposals on the measurement of annual hours of work on the basis of labour force sample surveys:

(i) 'Hours of work' as a concept needs to be clearly defined if one wishes to obtain reliable data and to ensure comparability between countries.

(ii) In measuring annual hours of work on the basis of an annual labour force sample survey it is necessary to extrapolate from the value at a more or less precise point in time to the annual value, and this involves a series of estimates and hypotheses. Thus the results are far from reliable. A rotating sample *(enquête continue)* is necessary in order to measure trends in annual hours of work. In this way at least some of the households or persons in the sample are questioned repeatedly on hours of work during the year. Naturally this means that the survey has to be carried out more than once a year.

(iii) As the questions on hours of work might be answered not only by the target individual himself but also by another member of the household instead, the information gathered might possibly be incorrect. Thus the goal should be to question the target individual himself. In order to ensure that the right questions are asked a supplementary survey should be held before the questions on hours of work are fully incorporated in the regular survey. To obtain more reliable answers one might also consider taking the day preceding the survey as the point of reference rather than the customary reporting week.

Discussion

Reservations were expressed, in particular by the OECD representative, about the possibility of acquiring precise data on hours of work with the aid of a sample survey on employment. After all one was speaking of questionnaires in which certain subjective assessments, ability to recollect, etc. could play a role. In many cases, moreover, family members rather than the target individual were interrogated. Data from surveys of firms were often more precise and, in particular, could be broken down in great detail; also the characteristics could be crossed,

e. g. with size of undertaking, something which was not possible in a household sample survey. It was also pointed out that rotating samples are not the only way of determining the annual number of hours worked but that sufficiently reliable estimates could also be obtained from other statistical sources, as was done, for example, in the Federal Republic of Germany.

Although nobody questioned the fact that there were problems involved in measuring working hours on the basis of sample surveys, it was pointed out that errors could also crop up when other sources were used. Labour force samples at least related to the entire working population and not only to all or some of the dependent categories, as was the case with surveys of firms, which were based on payroll data. As regards reliability reference was made to the Canadian labour force survey. This survey attempted to delimit working hours with a series of questions:

(i) How many hours do you usually work?
(both main job and part-time work)

(ii) How many extra hours did you work last week?

(iii) Number of hours taken off? (e. g. holiday)

(iv) Reason for hours taken off?

(v) How many hours did you actually work during the reference week?

The Canadian experience had been very encouraging. The results were quite precise. The last question (V) confronted the respondent with the earlier answers again so that some degree of control was possible. To check reliability, experienced interviewers could reinterrogate the same group of persons on a simple basis. Another approach had been tested in the United States: the respondents' answers were compared with data supplied by their employers. No major discrepancies had come to light.

4. Estimation of gross flows from the Canadian labour force survey

(I. MACREDIE, Statistics Canada, Ottawa)

Summary

As a rule, sample surveys only provide point-in-time stock data on characteristics of the working population. This paper describes how the monthly Canadian labour force survey is used to provide information on gross flows - in this case movements between the various status groups which make up the workforce. This is possible because the Canadian survey is based on a 'rotating sample'. Every month one-sixth of the persons in the sample are replaced by another sixth - a subsample. Thus every person in the sample can be interrogated for six consecutive months. In other words, changes from month to month can be identified for 83% (= five-sixths) of the total sample in a given month.

Although the results to date are encouraging and it is planned to publish the flow data on a regular basis, a number of problems and possible sources of error have been noted.

(i) Distortions can arise through the non-matching of record identifiers in two adjacent months as a result of misclassification or non-response.

(ii) Whereas the stock data refer to a particular month, the flow data are derived from two consecutive monthly surveys. This can give rise to additional uncertainties which make it more difficult to develop a consistent data system, as flow and stock data, after all, are linked, i. e. they should provide a consistent information system.

(iii) In view of the frequency of interrogation, response behaviour may alter - for example non-response is highest in the initial interrogation.

Discussion

Attention was drawn to some *special characteristics of the Canadian survey* and their significance in the European context. A number of these points are summarized below.

The burden on the respondent posed by repeated interrogation and the likelihood of his reacting negatively was considered a greater problem in, for example, Italy than in Canada. Here, too, six interrogations were felt to be the upper limit.

Despite similarities in the structure of the Canadian and American sample surveys, American experience with gross flows had not been encouraging. No explanation could be given for these differences. One hypothesis was that the estimate of stocks on the basis of the current population survey could lead to inconsistencies in relation to the flow statistics.

Non-respondents posed a particular problem - e. g. people who were not in when the interviewer called. Up to now they had been treated as though they had the same distribution of characteristics as the respondents. It should be assumed, however, that their characteristics were distributed differently, as they would tend to be younger and/or employed. The hypothesis that respondents and non-respondents had similar characteristics introduced a certain degree of uncertainty into the results of stock and flow measurements.

A further problem was that of rotation group bias. If, for example, the characteristic 'unemployment' was related to the number of months during which the respondents belonged to the sample, it appeared that the percentage of unemployed decreased over time. No explanation had been found for this systematic distortion. It might be connected with non-response.

The Canadian survey provided information not only on changes in employment status but also on such factors as job change, new jobs, redundancies, etc. The calculations of transition probabilities provide an investigative tool which could be used to analyse and forecast labour market developments.

A monthly questionnaire was not possible in the European context. Accordingly there was a need for *alternative sources of flow data.*

(i) The administration of social security often required the registration of inflows and outflows. Examples were registered unemployed and social insurance. Theoretically

flow data could be derived from these current statistics. Usually, however, these administrative data concerned only specific aspects of the labour market and differed greatly from country to country; accordingly they were not suitable for international comparisons.

(ii) Panel questionnaires could be used to follow up a particular group of persons over time. For example, one might select school-leavers in a particular year and interrogate them on transition into working life and job history at regular intervals. The drawback was that surveys of this kind were very time-consuming and expensive.

(iii) A further possibility for acquiring flow data was to incorporate retrospective questions in an existing survey. This had already been done in the Community labour force survey organized by the SOEC. The difficulty with retrospective questionnaires was that errors might creep in due to faulty recollection on the part of the interviewees.

(iv) Accordingly the practical proposal was made that the labour force survey be carried out annually at Community level in the form of a rotating sample. In this way it would be possible to determine annual flows in the form of changes between two points in time.

5. Forecasting employment: the use of available statistics as a basis for forecasting employment in the Community

(G. McLEOD, Gwilym JENKINS and Partners Ltd, Lancaster)

Summary

In collaboration with the Commission's Directorate-General for Employment, Social Affairs and Education, Gwilym JENKINS and Partners Ltd (GJP) have been concerned for five years in a continuing programme of research and forecast generation. Models and forecasts are now available down to the level of dependents, broken down by eight economic branches, in the EC Member States. The work has reached a sufficiently definitive stage for GJP to have been asked to develop a computerized system for generating forecasts, and this is now in operation.

The models are of two types:

(i) *univariate* models in which employment is related to past values of the employment series. Such models are needed at certain points in levels 4 (working population broken down by three economic sectors) and 5 (dependents broken down by eight economic sectors) because of the impossibility of relating the disaggregated employment series to macroeconomic variables;

(ii) transfer function models in which employment is related to GDP. The majority of models are of this type.

As regards the Eurostat data used, the following points may be made:

(i) The use of consistent employment data as contained in the Eurostat publications has had a major influence on the development of an operational computerized system for forecasting employment in member countries.

(ii) The major benefits from the use of the Eurostat statistics have been the simplification of data collection, improvements in model building, partly due to continuing improvements to data quality, and the reduction of the number of anomalous data points.

(iii) Problems with data quality still remain, the most important being due to the non-availability of certain data on employment at level 5 (employees broken down by eight economic branches), extensive historical revisions and the topicality of the data.

(iv) In the longer term, considerable advantages will result from the production of consistent quarterly employment data and better data on hours worked and average wages.

The economist is faced with three major tasks:

(i) Description of the economy, in this case the labour market. To this end indicators must be found which are relevant and/or can be broken down into components.

(ii) Analysis, which requires knowledge of a sort of microcosm from which information could be gleaned on the relations between the various elements.

(iii) Forecasting, which can be done on the basis of behavioural models containing assumptions on interdependencies, or of methods such as those recently developed by BOX and JENKINS, involving the extrapolation of time series into the future. In principle this method involves forecasting the time series on the basis of past trends and puts high demands on the quality of the statistical data.

Discussion

During the discussion the question was raised whether forecasting should also include identifying the possible effects of policy measures. To this end, simulative calculations were required, which were based in turn, however, on behaviour-reaction equations. Multivariate analysis was also possible using the BOX and JENKINS method; but first one must be familiar with the interdependencies. In this connection it was proposed that working hours should be included as a variable and that employment data should be disaggregated by sex.

Further points raised during the discussion concerned the forecasting horizon, the accuracy of the forecasts, to the extent that they could already be checked, error analysis and the method of reconciliation, i. e. whether it was better to adapt the overall forecast to sectoral values, or vice versa. It was not possible to give a clear answer to this question, as a lot depended on the data available in each specific case and in a given country. As regards checking the forecasts and error analysis, the rapporteur pointed out that conditions could be incorporated in the BOX and JENKINS model which reacted to changes/discrepancies between the forecast and the observed values and that, accordingly, it was possible to correct the forecasts continually.

IV - Provision of better statistics: the view of statistical services on frequent user concerns

Summary and discussion

1. In their daily work, the SOEC and the national statistical offices were familiar with user's requests for greater clarity as regards the diagnostic value of the available statistics, and for improvements in the statistical tools. It thus seemed worthwhile to reserve an item of the agenda of this seminar for an open discussion between the producers and consumers of statistics, so that both sides would have occasion to air their views.

In order to channel the discussion four topics had been singled out, namely:

(i) comparability of statistics from different sources;

(ii) adjustments of time series to changes in methodology and definitions;

(iii) possibility and reliability of measuring changes;

(iv) more rapid provision of data and better access to information.

Contributions were submitted on the following themes:

(i) Comparison of the results of the Community labour force sample survey with the national employment statistics in the United Kingdom (DAVID, Department of Employment, London).

(ii) Some general observations on labour force surveys as a source for measuring methods of employment and unemployment in Ireland (J. O. O'HANLON, Central Statistics Office, Dublin and U. J. SEXTON, Economic and Social Research Institute, Dublin).

(iii) The situation as regards comparability in Danmark (JENSEN, Danmarks Statistiks, Copenhagen).

(iv) The situation labour force sample survey (I. SANETTI, Istituto Centrale di Statistica, Rome).

(v) Adaptation of time series to changes in methodologies and concepts (M. B. GRAIS, Institut National de la Statistique et des Etudes Economiques, Paris).

(vi) More rapid provision of data and better access to information (H. L. MAYER, Statistisches Bundesamt, Wiesbaden).

(vii) Work force and employment flows (C. MORIANI, Istituto Centrale di Statistica, Rome).

2. The first topic *'comparability of statistics from different sources'* seemed to be one of the major preoccupations of all users, because in many cases they were not familiar with differences in the statistical methodologies and definitions which at first sight seemed to deal with the same phenomenon.

The most current example in this domain was the existence of series of figures on unemployment.

The results of the short-term statistics on registered unemployed coming from employment offices were often significantly different from the unemployment figures derived from labour force sample surveys.

Unfortunately, despite a large number of studies and detailed analyses, it had not yet been possible to produce a correct and relatively simple liaison between these two fields.

The problem of linking two different sets of statistics also presented itself for other employment statistics. In this connection one might mention the comparison of results from surveys relating to the entire working population (e. g. harmonized statistics on employees) and statistics which were restricted to plants or undertakings above a minimum size, or to attempt to reconcile statistics on hours of work derived from different sources.

As an example one could mention the reconciliation and comparison of the labour force sample survey results with the national statistics on unemployment and employment. The data related to the United Kingdom and were derived from the reports submitted by the Department of Employment (UK) for this seminar. It could be seen that the relatively small net differences in the data derived from different sources concealed much larger but partially offsetting gross differences.

Reconciliation of the labour force sample survey (May 1977) with the DOE's 'Registered unemployed' (June 1977) (in thousands)

UNEMPLOYED PERSONS (Table 01, labour force sample survey 1977)		1 181
plus:		
Unemployed persons in institutions	50	
Persons seeking occasional jobs	330	
Registered but inactive	120	
Day/week adjustment	30	
Timing difference (May–June)	109	+ 639
		1 820
less:		
Unregistered unemployed	400	
Temporarily sick	50	
Registered part-time non-claimants	25	- 475
		1 345
Unexplained		+ 105
REGISTERED UNEMPLOYED (Department of Employment Gazette)		1 450

3. As regards the *adjustment of time series to changes in methods and definitions,* the views of producers and consumers often differed widely and even consumers were not agreed amongst themselves. For economic studies the need was often for a long and continuous series, even if the results as such were somewhat inaccurate, whereas the user concerned with short-term effects mainly needed statistical data on the current situation.

Thus, the statistician faced two alternatives: either he could abandon the attempt to improve the quality of data collection in line with the changing economic and social situation, in order to maintain continuity in what was being measured, or he could wholly or partly cut the link with the past if an approach based on the new concepts was not possible.

In addition to the problem of changes in methods and definitions, it was necessary when preparing time series to take account of new statistical information, such as data from population censuses or new surveys – not to speak of the results of current statistics, which were available only after a prolonged delay.

4. The most difficult problems to solve concerned the *possibility and reliability of measuring changes.* In the present system of Community statistics on employment, the measurement of changes was restricted mainly to a comparison of stock data at various points in time.

Flow data, which alone could provide detailed information on the structure and volume of the changes taking place, were virtually non-existent and, accordingly, should be introduced as soon as possible.

The comparison of stock data in the labour force sample survey was further hampered by the long intervals between two inquiries and changes in methods or sample design at national level, quite apart from the random errors which were inherent in all inquiries of this kind.

In this connection the SOEC was trying to improve matters at least as regards the latter point by publishing for certain population and employment groups the sampling errors which figured in the results of the inquiry. Also foreseen was a careful study of the possibility of improvement which more frequent inquiries and the use of a system of rotation of households over several inquiries would offer.

5. Certainly the users main concern was that *the data should be made available more rapidly and that they should have better access to information.* Acceptable delays existed at present for the statistics of registered unemployment, which were published by the SOEC each month about 20 days after the reporting date and for all Member States.

However, rapid diffusion of detailed data based on these statistics was sometimes hindered by transmission delays, which could reach three months after the reporting date, and sometimes by staff shortages at the Statistical Office.

For annual employment statistics one generally had to reckon with a delay of three months before these data were sent to the SOEC. In many cases this delay was exceeded (for example, the harmonized statistics on employees were not yet available for certain countries for March 1980). These long delays had a particularly negative effect in times when jobs were scarce.

The situation was even worse in the case of the labour force sample surveys. In the past it had taken up to 18 months after the reference period before the data were available for Community use. In general the national statistical offices seemed to need nine months, so that the

SOEC could not put the Community results at the disposal of the Commission departments until a year after the reference period. The situation notably as regards unemployment could well have changed substantially by then seriously impairing the usefulness of the survey.

As regards access to information, the SOEC had in recent years developed a system of *ad hoc* statistical bulletins which could be prepared and distributed quickly in order to overcome at least partially the long delays that official publications often suffer.

Secondly, work was being done to set up a specific social statistics domain in the CRONOS data bank accessible to users in the Commission services. Some of the data contained there could also be accessed via Euronet. This new domain known as SOCI grouped together all the data at present available in other areas. It was supplemented by further data, thus considerably improving computerized access to data on employment and unemployment.

On a general level new approaches to improving the preparation of data included *ad hoc* presentation of tables using standard programmes, direct access to computerized data, inventories, e. g. from data banks, the supply of public use files (individual data) and microfilm (aggregated data).

Problems which arose for suppliers and consumers included: transparency (data catalogue), up-to-date storage, overload, costs, restriction of data supply, the possibility and readiness to link up with data suppliers, simplified user language, etc.

V - Summary and conclusions

The Statistical Office of the European Communities already compiles and publishes a wealth of data on employment and unemployment. A prime purpose of the seminar was to seek views on where improvements, developments and changes are most needed. The wide and broadly based membership of the seminar and the number of experts who participated was evidence of the importance of the subject-matter. Inevitably in such a diverse gathering, a wide range of views were expressed, on occasion in conflict one with the other. Nevertheless, a number of themes emerged on which there was a broad measure of agreement. These themes and the suggestions made for improvement and change may be considered as falling into two distinct though not mutually exclusive groups. Suggestions for improvement within the existing framework of established statistical series, surveys and analyses may be taken to comprise the first group; the second group may be taken to comprise suggestions for more fundamental changes and extensions in the scope of the existing data bank.

Within the first group, many suggestions for improvement within the existing frame-work were concerned with closing gaps in the existing series and with improving the Community labour force survey. The development of reliable and regular statistics for services - the sector which had shown most employment growth over recent years - was widely regarded as a priority. There was also pressure for better and more frequent information on particular groups experiencing labour market problems: young persons, migrants, etc.; for improved regional breakdowns throughout; for a more detailed breakdown of hours worked; and for better reconciliation of data from different sources. From the point of view of economic analysis and forecasting, emphasis was given to faster and more frequent, e. g. quarterly, employment data, to improvement in reliability and to more standardized analysis by skill as well as further subdivision of an economic structural nature.

Attention was repeatedly drawn to the potential of the Community sample survey of the labour force as a unique source of comprehensive comparable information about the labour market in the Community. There was widespread agreement among all the participant groups that the Community labour force sample survey should be conducted more frequently, e. g. quarterly, half-yearly or annually. The existing two-yearly interval was considered to be decidedly too long. If one also remembered how long it took to process the survey, it was clear that the sample results could no longer be used for the analysis of short-term economic trends. More frequent surveys and faster processing were essential.

Apart from the improved topicality, an annual survey would make it possible to carry out follow-up studies on particular groups of individuals over a specific period. This could be done by means of retrospective interrogation or by designing the survey as a rotating sample, i. e. a proportion of the individuals included in the sample could be included in the following interrogation. Furthermore annual surveys, particularly if a rotating panel were included would lead to considerable improvement in quality. One problem with the Community labour force sample survey was that it was based on national surveys. Each country used its

own questionnaire which might incorporate national peculiarities and approaches. It was not always easy to recognize the differences between the Community survey and the national surveys. In many cases national 'filters' were inserted before the data were evaluated and sent to the SOEC, so that the results were distorted. To improve comparability, closer attention should accordingly be paid to these differences in future, and clearer concepts and questionnaires should be developed.

Major items on the second group of suggestions which had to do with changes to the existing statistical framework were concerned with building up a set of labour market accounts with more dynamic information about flows as well as stocks. Such accounts would supplement the existing cross-sectional data which only describe the situation at a point in time. It was suggested that the measurement of the volume of work should be made in a more precise way than the classical per capita basis. It was pointed out that over the last two decades the structure of the labour force had changed substantially (e. g. considerably increased participation by women); and that attempts to calculate the volume of work on a per capita basis were insufficient at a time when working hours were becoming increasingly flexible. None of the participants doubted the necessity in principle of flow data of this kind, nor the need to incorporate them in a consistent labour force account, although considerable reservations were expressed as regards their practical implementation which might well need further study.

In view of the forthcoming Conference of Labour Statisticians to be held in October 1982, the seminar did not much discuss definitions and concepts but it was mentioned that in order to facilitate more use of national statistics, Eurostat would publish a number of works giving some indication of the definitions and concepts used in national series of labour market statistics.

The Statistical Office of the European Communities is charged with providing the Community institutions with information for the implementation of their policies. Recent changes in economic trends and consequential changes in policy emphasis have led to demands for new information. It has been an important function of the seminar to examine some ways in which new and better information might be provided.

Part B:
Original texts of the contributions to the seminar

1. Statistical needs for Community employment, labour market, economic and social policy

1.1. Statistical problems of an economic labour market analysis

(P. ZANGL, DG II - Economic and Financial Affairs)

With unemployment mounting, the statistical problems of an economic labour market analysis are taking on increasing importance. Since other aspects of the matter are dealt with in other papers, my focus will be on the economic aspects. In other words, I propose to concentrate primarily on costs, profits, supply, demand, market developments and the net effect of such developments. Although of fundamental importance for my subject, wage-related problems have been ignored since an entire seminar was devoted to them recently. Viewed from the angle of the major policy issues to be addressed by labour market analysis,[1] three areas therefore need to be looked at more closely:

(i) labour market developments;

(ii) the supply of labour;

(iii) the unemployed.

I would add that my analysis will be that of a user, i. e. someone who, in the nature of things, will always remain dissatisified since he starts from a particular problem and so would like to have at his disposal all the relevant data on that problem. Yet the likelihood is that this problem could not even have been suspected when the statistics were being compiled, and so the analyst has to make do with second-best or third-best solutions. In the end, therefore, he is bound to remain dissatisfied, although he would also have reason to be grateful that statistics, in their forward-looking wisdom, did after all provide him at least with this third-best solution.

Lastly I would apologize for all the statistical information that I may have overlooked. I trust that my occasional criticisms are completely unfounded and that someone will come up with the figures that I thought did not exist.

1. LABOUR MARKET DEVELOPMENTS

The problems of underemployment are apparent mainly from the number of jobless and from the structure of the jobless. While these problems may also be tabled in a number of areas outside the labour market, notably through policy on education, training, family and pensions, the main solution to underemployment lies in the area of employment. This means that detailed information on the volume of work and on the structure of the gainfully

[1] See *Measuring employment and unemployment,* OECD, Paris, 1979, p. 9.

employed is needed before any analysis can be made of the labour market and its functioning. I propose to concentrate primarily on the volume of work, adding a few words on the significance of a number of structural characteristics.

1.1. Volume of work

1.1.1. Need for an accurate assessment of the volume of work

Assessing the volume of work enables us, in a first stage, to answer the simplest of all questions, namely how much work is being done? In the short term, figures on the volume of work thus tell us about the trend of the economy and about the level of employment measured in terms of capacity utilization. It follows that regular surveys of the volume of work would without doubt provide one of the most reliable cyclical indicators. This is particularly true at times of high unemployment, such as we are experiencing now, when the level of economic activity is not scrutinized primarily or exclusively to gauge the well-being, achieved in terms of money GDP, but above all to measure the employment component of well-being. Clearly, the aggregate employment and unemployment figures available to us today are only an inadequate substitute. This is partly because they tell us nothing about the flexibility potential of the labour market, which can in part help to ease the situation (e. g. short-term working and overtime) but which may also aggravate problems (e. g. the tendency for the sickness figures to vary with the cycle).

For the purposes of short-term analysis, the volume of work is, therefore, synonymous with turnover on the labour market, that is to say the amount of work at which supply matched demand. Although this is a global variable, it could be of significant help in assessing the market situation at any given time.

For medium-term economic analysis, not only that of the labour market, the volume of work plays a central role that far exceeds its short-term significance: figures on the volume of work are absolutely essential in order to gauge the efficiency of the factor input, and, particularly, that of labour in an economy. This can be measured only by taking the hourly productivity of labour, which in turn can be calculated only where figures are available on the volume of work.[1]

The following three aspects will suffice here to underscore the major significance of hourly productivity for economic analysis:

(i) its changes over time provide a reliable macroeconomic indicator of the efficiency of our economy;
(ii) together with wage costs, it is a decisive factor in any estimation of the price competitiveness of a particular economy;
(iii) if we look at how it differs between sectors and over time, the hourly productivity of labour provides essential information on the causes and appropriateness of change in sectoral structures and hence of the progressive division of labour between sectors.

---

[1] In the United States fairly long-run figures are available. See *BLS-Machine-Readable Data and Tabulating Routines,* US Department of Labour, Washington, February 1981, p. 4.

1.1.2. The statistical measurement of the volume of work

1.1.2.1. The volume of work is made up of two variables, the number of gainfully employed and the number of hours worked, which are ascertained separately. Of the two, the former is the more reliable even though the principle whereby only individuals are counted whose activity is connected with the earning of income does pose problems.[1] While the statistics on the number of gainfully employed in the economy as a whole are fairly complete and regular, their sectoral breakdown is not altogether satisfactory since it is not sufficiently up-to-date and complete, as regards both sectors and countries.

1.1.2.2. When we come to the measurement of working time, the position is much less satisfactory. It must first be understood that it is basically only the number of hours actually worked that is of interest. Generally speaking, therefore, we need figures on quarterly or annual working time that take into account not only factors such as periods of absence, sickness and leave, but also the effects of public holidays. Accordingly, the number of hours in a reporting week, as ascertained for example, in the labour force sample survey is of only limited use for the purposes of economic analysis.

Roughly speaking, no such figures exist, at any rate for the economy as a whole. Only the surveys of industrial wage costs, conducted every three years, yield such figures for industry and commerce. Fortunately a detailed sectoral and even regional breakdown of these figures exists. Yet, even these figures are not completely satisfactory. Although, overall, the choice of the survey years (1969, 1972, 1975 and 1978) was relatively fortunate in that the base year 1972 was one of reasonably full employment, two major drawbacks are that the most recent figures available are now three years old and that no date has as yet been fixed for processing the 1981 figures. This is all the more serious because the 1978 figures have had to be rolled forward on the basis of data from the six-monthly survey of working hours even though this is admissible only to a limited extent.

A further complication is that the number of hours worked was ascertained only for manual workers, while in the case of salaried employees the only information available is that on agreed working hours. Although this may have been acceptable some years ago, the growing share of salaried employees in total employment has made it an increasingly unsuitable approach. Even though the chances of success appear slim at first sight, ways should be sought of measuring in some approximate way the number of hours actually worked by salaried employees; this would still leave the perhaps insoluble problem of determining the working hours of the self-employed. A general question arising here is, of course, whether the distinction between manual workers and salaried employees is still valid, that is to say whether it is analytically relevant.

A further point to be borne in mind is that there is no statistical material whatsoever on working hours in large areas of the services sector or in agriculture, with the result that these two sectors have to be excluded from a good deal of the analysis. It is also a fact that no satisfactory data on working hours are available for a short-term analysis.

Alternatively, it would certainly be interesting to know how standard working hours fluctuate between individuals, between sectors and overtime. For this, we would need figures on

[1] The peculiarities of the 'underground economy' will not be discussed in this paper.

part-time and short-time work and on overtime. But here too more questions are raised than there are answers. In order to illustrate the importance of working hours for the practical work of the Commission, I would just mention the debate on work sharing, which has been going on for a number of years now. The lack of statistics on the overall trend of working in the economy as a whole and on some of its key determinants (overtime, part-time work, shift work, etc.) has, of course, enormously complicated, and sometimes actually impeded, analysis and the associated attempts to explain the trend of working hours and its economic causes and effects. This was keenly felt during the work in the Economic Policy Committee to prepare the Council Resolution of 18 December 1979 on the adaptation of working time. The lack of statistics was again felt when the fifth medium-term economic policy programme was being prepared. The, at times, somewhat vague-sounding passages on work sharing, in the fifth programme which essentially rest on general cost consideration, are thus directly attributable to the inadequate statistical base. With a slightly better statistical base, the policy conclusions could certainly have been more precisely formulated.

1.2. Structural characteristics of the gainfully employed population

Information on the structural characteristics of the gainfully employed population has been collected at 10-yearly intervals as part of the national censuses. The characteristics covered included sex, age, socioeconomic position (manual worker, salaried employee, civil servant, etc.) occupation, educational and training qualifications, and sectoral and regional distribution. These intervals are much too long for an operational labour market analysis. For the purpose of investigating the structural characteristics of the employed population, use is therefore made of the results of the two-yearly labour force sample surveys.

Some of the most interesting data produced by the sample surveys concern regional, sectoral and occupational mobility. In fact, the data on mobility are the most important figures after those indicating general quantities. Briefly, this is because a constant number of gainfully employed persons in the economy must be interpreted in quite different ways, depending on whether it reflects a completely rigid structure or whether this apparent inflexibility masks a host of changes in occupation and activity. The first hypothesis is comforting for those who already have a job but means that those prevented from carrying on a gainful activity have no hope of escaping from their situation. By contrast, if a constant number of gainfully employed persons does conceal numerous changes on the labour market, any move between firms gives the 'outsider' a chance of entering the labour market.

The results of the sample survey demonstrate that mobility is often greater than was assumed: in virtually all the countries of the Community, as many workers have left manufacturing to take up jobs in the services sector as have moved in the opposite direction.[1] This is a sufficient indication of just how unrevealing figures are that only depict the net position, especially when the intervals between surveys are long.

The level and the trend of these figures are still surrounded by some uncertainty, particularly where the different orders of magnitude and changes between Member States are concerned.

---

[1] See Eurostat, *Labour Force Sample Survey,* 1973, 1975, 1977, Luxembourg, 1980, pp. 160 et seq.

Take the following example: in the Federal Republic of Germany, 16.5% and 26.8% of the employed population either changed jobs or entered working life in 1973 and 1977 respectively, while the relevant figures for the Netherlands were only 8.9% and 8.6%.[1] We are still unable to explain such differences between national economies which themselves are broadly comparable.

Such figures are none the less extremely important since without them we are unable to interpret net positions. However, the method of collecting such figures should be refined and the intervals between surveys shortened since there is the drawback that no comparable figures are available for 1978, which was a year with a normal business situation. US statistics are exemplary here since they even provide monthly labour turnover rates for 20 branches of industry.[2]

2. SUPPLY OF LABOUR

2.1. Problems

During the 1960s it could be broadly assumed that the aggregate labour supply equalled the numbers employed plus the unemployed. With increasing underemployment and mounting unemployment, however, this identity looks further and further removed from reality. An assessment must therefore be made not only of the present labour supply but also of the future potential. Data on the present labour supply are needed primarily in order to estimate the share of the potential labour force that remains unutilized. Since we do not even know the exact degree of utilization of the gainfully employed (i. e. the employed part of the labour force), there is an urgent need to measure the 'degree of utilization' at least by reference to the total labour force potential. This need also arises because it is customary to calculate degrees of utilization for the stock of physical capital, making it appear essential that at least comparable figures should be available for the factor of production labour, which, statistically speaking, is easier to measure. The fact that in estimating a labour force potential we obtain a measure of the politically somewhat sensitive 'latent manpower reserve' at the same time this, at least implicitly, should not stop such an exercise.
In addition, the Community needs its own manpower forecast to ensure consistency: there is reason to assume that adding together 10 national manpower forecasts will in no way yield a forecast for the Community as a whole. To prove this it is not even necessary to point to the requirements which such an exercise would, in theory, have to satisfy, namely that national forecasts should be based on comparable approaches and assumptions. The problems of migration illustrate the point much more clearly. No national manpower forecasts can be made without, explicitly or implicitly, formulating assumptions about net migration.
There is little to suggest that these assumptions would be mutually consistent. Yet if there is no such consistency in the case of migration, part of the future labour force potential may well be made to disappear by mutually incompatible assumptions regarding migration.

---

[1] See ibid., p. 150.
[2] See *Monthly Labor Review,* US Department of Labor, Bureau of Labor Statistics, Washington, August 1981, p. 80.

There is little to suggest that these assumptions would be mutually consistent. Yet if there is no such consistency in this case of migration, part of the future labour force potential may well be made to disappear by mutually incompatible assumptions regarding migration.

2.2. Availablity of manpower forecasts

In 1978, the Commission produced a report on 'The economic implications of demographic change in the European Community: 1975-95', which was published the same year, was sent to all Member States and did not meet with any serious objections. The report employs comparable assumptions for all the Member States, and this does not exactly facilitate comparisons with national forecasts. It is so far the only basis on which the Commission is able to estimate such variables as future entries into and withdrawals from the labour market and hence manpower growth.

Almost four years have passed since the report was first published, and five years since the figures were calculated. There is therefore a need to update them, and to do so on a regular basis, which would also mean calculating new activity rates.

The Directorate-General for Economic and Financial Affairs, which in drawing up the report has done much to help clarify a variety of methodological problems, is in no doubt that this updating should be undertaken on a regular basis by the Statistical Office of the European Communities, working in close association with the appropriate authorities in the Member States. Also, the work of the Commission and of its departments would be significantly facilitated if manpower forecast figures were produced by the Statistical Office and not by experts, however renowned they might be. The same is incidentally true of general population figures and of the relevant structural data (e. g. dates of birth), which are useful, for example in consumption and infrastructure analyses.

3. UNEMPLOYMENT STATISTICS

3.1. Significance of unemployment for economic labour market analysis

In the case of unemployment, as in that of employment, the attention of economists and of economic policymakers is of course focused primarily on the number affected. The general unemployment figure, which indicates for how many of the persons in the labour force there was no effective demand under the market conditions obtaining at the time, is the key indicator of the extent of underemployment.

It is vitally important not only to measure the scale of the problem but also, of course, to explain it. In addition to the neo-classical explanatory models, most of which trace the causes of underemployment to structural features of the economy and which have therefore no contribution to make to unemployment statistics, newer approaches might prove relevant that differentiate between several of underemployment and hence between several types of

unemployment.[1] On the basis of such conceptual approaches, an operational breakdown of unemployment could be constructed that distinguished between:

(a) frictional unemployment;
(b) Keynesian unemployment;
(c) structural unemployment:
    (i) neo-classical, Marxist;
    (ii) other: e. g. regional, sectoral, skill related.

There is reason to assume that types (b) and (c) (i) are not open to an analysis based on unemployment statistics, since they are essentially the result of effective demand for goods being too low or wages being too high. By contrast, it should be possible to measure frictional unemployment and the other types of structural unemployment with the help of the unemployment statistics.

A more pragmatic approach to economic labour market analysis based on unemployment figures might be to look more closely at their economic aspects, and in particular to investigate the costs of unemployment. These costs are reflected in welfare losses, in future costs attributable to the emergence of marginal groups as a possible result of permanent unemployment but also in the economic costs of the underground economy, the growth of which is without doubt encouraged by mounting unemployment.[2] Of much greater relevance, however, are the costs to households, expressed in terms of losses in income attributable to unemployment, and the costs to the State in the form of increased expenditure and reduced revenue. As a proportion of the gross wage prior to unemployment, these costs could well amount to over 35% in the case of households and to 100% in the case of the State.[3] The aggregate cost, which is nearly 140% clearly shows just how important it is to have income statistics for the unemployed. In addition, however, these cost aspects are directly related both to Keynesian and to neo-classical unemployment. Since the costs to households and to the State have direct implications for the volume of demand and its structure, the link with Keynesian underemployment is directly identifiable. The link with neo-classical unemployment on the other hand becomes clearly discernible when it is realized that the level of the incomes of the unemployed tends to have some impact on wage expectations.

3.2. Contribution made by the unemployment statistics

Where the number of unemployed is concerned we do receive information on a regular basis but its use is limited because the figures are not based on any uniform definition and are not therefore fully comparable. The reasons for this is, of course, that national laws and regulations frequently differ very considerably, and so no solution to this problem is in sight. Even so the rapid and reliable communication of the latest unemployment figures through the statistical telegrams remains an important source of information for economic policy-makers.

---

[1] See, for example, E. MALINVAUD, *Réexamen de la théorie du chômage,* Paris 1980.
[2] See 'The main medium-term issues: an analysis', *European Economy No 9,* Brussels, July 1981, Chapter 2.4.
[3] See M. NOYCE, *Average incomes from employment and unemployment,* Doc. II-C-4 817667 of 8 October 1981; see also Table 1.

The structural data in these regular unemployment statistics which help to explain functional and other types of structural unemployment are confined in the main to the significance of problem groups (women, young people) and to the duration of unemployment.

Where the figures on female unemployment are concerned, the impact of national laws and regulations relating to unemployment and unemployment benefit is particularly marked. In the case of Belgium the fact that unemployment benefit can be drawn for an unlimited period influences not only the duration but also the level of unemployment and thus limits the significance of such figures.

In the case of young people, the main problem concerns the standard of comparison. Although it is not unimportant to know, for instance, that in September 1981 46% of the people out of work in France were under 25, it would be much more useful to know the specific unemployment rate for this and for other age groups. These rates are not, however, communicated and it is difficult for a user to calculate them even approximately.

Lastly, where the duration of unemployment is concerned, the necessary variable is sometimes not measured. If we look, for example, at the particular problems faced by young people, it is fair to assume that, broadly speaking, they are affected not by permanent unemployment but by 'repetitive unemployment'.[1] This reasoned assumption cannot be substantiated by statistics on the duration of unemployment. This would require figures for the total length of unemployment over a given period (three years, say), but no such figures are as yet available.

The labour force sample survey might be expected to provide more reliable data, but the two-year interval between surveys is not suited to resolving the problem since some of the figures supplied are out of date.

A further drawback is that the unemployment rate obtained for the Community from the survey is lower than that based on the number of registered unemployed, although this shortcoming does not appear systematically in all Member States. If one tried to identify the technical reason for this discrepancy one would inevitably find that unemployment benefit in most countries is so generous that many people are tempted to abuse the system. It is quite correct to say that the number of genuinely unemployed can be calculated by deducting from the number of registered unemployed those who register as being unemployed only because of the benefit they receive or hope to receive. But one must then, of course, add those persons who are seeking work but are not registered as unemployed. However, the impression has so far prevailed that the latter might outnumber those who register simply to pocket the benefit. Under no circumstances would it appear that the number of genuinely unemployed could be significantly lower than the number of registered unemployed, as the overall results of the sample survey suggest. This is particularly true in conditions of rising unemployment. If we assume that one of the advantages of sample surveys is that they enable the number of genuinely unemployed to be established more accurately, the labour force sample survey yields a surprising result that needs to be explained before its figures can be analysed.

Take for instance, the results of the 1979 survey. In addition to regional data, which, though significant, will not be discussed further in this paper, the survey produces two major findings:

---

[1] See P. ZANGL, *Le chômage des jeunes,* Doc. II-B-4 - PZ/yb, 1 September 1980.

(i) 46% of those out of work and looking for jobs are doing so for the first time or wish to resume gainful activity during a voluntary interruption (Table 51). If half the problem of unemployment is therefore a problem of labour market entry, the conditons of entry need to be investigated, with labour market mobility playing a key role (see Section 1.2);[1]

(ii) 83% of those out of work rely on the employment offices to find them jobs (Table 53). This clearly illustrates the importance of these offices.

Not much information is available on the problem of the mismatch between supply and demand, particularly where skill and the occupational structures are concerned. It must be emphasized, however, that the problems arising in this area cannot be resolved until these concepts have been made operational; since this appears extremely difficult, if not impossible, even at national level, it is quite conceivable that an exercise of this kind will prove to be impossible at Community level.

On the costs of unemployment[2] virtually no statistics are available. Any attempt to compile income statistics for the unemployed would, in any event have to take into account not only the costs of short-time work but also the alternative use of unemployment benefit as employment premiums.

4. CONCLUSIONS

The picture I have sketched in this paper may, in many respects, appear somewhat unfavourable and probably reflects the unduly critical approach of a user. But it should not make us forget that labour market and employment analysis has indeed been carried out on the basis of the statistics available and that a number of important relationships have been identified even though some of them have had to remain within the realm of probable hypotheses. Overall, an initial foundation has thus been provided for economic policy. And the reference to inadequate or indeed missing data should not be used as a pretext for not engaging in analytical work at all and hence for not taking the necessary political decisions.

None the less the general impression is that the labour market statistics are compiled more for social policy reasons than for economic policy reasons. Witness the predominance of 'social' criteria (sex, socioeconomic group, etc.) over 'economic' criteria (market developments, flow figures) in the unemployment statistics. To mention another example, cost aspects receive less attention in the unemployment statistics than the so-called problem groups. This is not a criticism aimed primarily at statisticians or policymakers since without them we would probably have very little in the way of statistics. My criticism is directed at economists, who, until the early 1970s were neglecting the economic aspects of labour market analysis.

Overall, then, statistical improvements appear desirable in two main areas. First there are the statistics on the volume of work, where substantial progress is essential in information on the number of hours worked. Second, reliable figures should be compiled for the present and future supply of labour. In addition, time and resources permitting, there is still room for improvement in unemployment statistics.

---

[1] See also the paper delivered at this seminar by L. REYHER.

[2] The figures given are simply based on case studies for specific types of household.

1.2. The use of employment and unemployment statistics in social policy

(D. WHITE, DG V - Employment, Social Affairs and Education)

POLICY NEEDS IN FACE OF THE EMPLOYMENT CRISIS

The Joint Council of Finance and Social Affairs Ministers (the Jumbo Council), meeting at Luxembourg on 11 June 1981 gave the highest economic and social priority to tackling unemployment, a position which was reiterated by the European Council of 29-30 June 1981.

This affirmation was the latest in a long series of expressions of concern by the Council of Ministers on the subject of unemployment since the beginning of the crisis in 1973.

It has further strengthened the sense of urgency with which the Commission has approached employment and unemployment issues throughout the period. The scale of the problem and the political priority attached to it has affected existing Community policies and called new ones into existence. An extensive programme of policy discussions, backed by communications, discussion documents and studies has been undertaken, leading in appropritate cases to the proposal of measures to the Council.

As regards employment policy, the main discussions have developed in the context of the work of the Standing Committee on Employment and the Tripartite Conference. Over the last three years, these have included examination of issues in connection with the reorganization of working time, the implications of new technology for employment, the scope for employment growth, and the use of forward-looking manpower policies for the management of the labour markets.

The Jumbo Council especially called for the following areas to be examined in the coming period as essential to the reduction in unemployment which is sought:

(i) a review of counter-inflation policies and their effects on employment with the aim of identifying ways in which inflation is successfully being fought while permitting a recovery of employment;

(ii) an examination of the relationship between government expenditure and employment in order to identify the cost of options open to governments in a period of low growth. This covers a wide range of issues from privatization to direct job creation and including industrial policy, regional and other spending policies;

(iii) promotion of areas of potential employment growth. There is a recognition of the Community's need to put more resources into areas of potential growth such as alternative energy production, energy saving, new technologies, small and medium-sized enterprises and new kinds of enterprise such as cooperatives and through the identification of local needs and opportunities;

(iv) a review of methods of financing the social security system and its effects on employment. Social security systems have a number of problems, which include the control of current expenditure, the coverage of the systems and the disincentive effects on

recruitment which may attach to certain schemes for financing the systems. The object is to seek ways of finance which are consistent with the highest level of recruitment;

(v) the encouragement of greater flexibility in the organization of working time and the examination of the scope for a reduction in annual working time and in overtime working;

(vi) the setting up of opportunities for young people to undergo integrated periods of education, work and training for a time after the end of compulsory education.

The financial instruments of the Community have also a role to play in the employment crisis. In particular, the European Social Fund and the European Regional Development Fund have obvious direct relevance to employment, and ways have been sought to enable them to respond with the greatest effect to current priorities. Both funds are shortly to have new articles and there is currently a vigorous debate on how they can best take the needs of employment into account.

Nor should it be forgotten that in addition to these policies and instruments there are others in the social policy field with a direct bearing on employment which are also striving to adapt to the needs of the employment situation.

Not only is there a need for policy to aid growing sectors, there is also assistance needed for sectors in crisis - steel, shipbuilding, textiles, for example.

Policies enshrined in the Treaty, such as equal rights for women at work, find the current situation presenting new problems and requiring developments in policy.

The rights of migrants and the duties of their host countries did not end with the recession.

Vocational training policy is more than ever tied up with employment, with new technology and innovations creating training needs of great urgency.

STATISTICS IN POLICYMAKING

Policy formation is an iterative process which involves adjusting to changing circumstances in response to political pressure. It is a process in which a number of groups interact, bringing together political perceptions, analyses and evidence, hopefully bringing about improvements in policy. Statistics provide a link between political discussion and empirical observation.

In the extensive programme of social policy outlined in the previous section, the Commission finds itself playing different roles in the policy process at different times, often with quite different requirements in terms of data. Thus one part of the services may be called on to assess the overall situation on the labour market; another to evaluate the roles of various policies; another to manage its financial instruments; and another to defend its existing policies.

There can be no guarantee that the same type of data will satisfy all of these at once. Further, the Commission calls on a wide range of outside experts to carry out studies in support of its work programme, all with their own requirements.

However, two particular uses of statistics can be separated:

(i) Those used for monitoring, whether in assessing trends and identifying problems or in managing the use of instruments such as the Social and Regional Funds.

These uses have the advantage that the sort of data asked for is fairly predictable. The main emphasis is likely to be on uniformity, continuity of cover, timeliness and breakdown.

(ii) Those used in basic studies and in the quantification of policy proposals. These have the disadvantage that it is hard to predict data needs in advance, both because analysts are likely to want data to fit their particular models and because the evolution of the policy debate is hard to foresee.

DATA FOR MONITORING

Employment: questions

The range of data that would be required to fully cover the assessment of the labour market situation would involve answers to a wide range of questions. For employment it includes:

- how much employment do we need?
- who is employed
  - by sex,
  - by age,
  - in what (branch),
  - doing what (skill),
  - where (region),
  - where do they come from (country of origin)?
- what is it like to be employed
  - how do people enter jobs,
  - what are the skill requirements,
  - how are the skills obtained,
  - how often do people move and where to,
  - what is the structure of working time,
  - what is the wage structure?
- what changes are taking place i. e. the extension of all above issues over time?
- what is the relative situation of different parts of the Community – i. e. ways of standardizing the data for ready comparability?

Employment: answers

The statistical base for answering these questions has increased markedly over the past seven years. The main sources of Community-level information with which to answer such questions are:

- Social statistics annual series on
  - population by sex,

- active population by sex,
- sectoral employment by sex and statute,
- branch employment (ISIC, 10 branches),
- branch employment, NACE groups 1-5 to 2 digit (sometimes 3 digit) level.

These series are published with a delay of about one year.

- Labour force sample survey (LFS)
  - population,
  - active population,
  - branch to NACE, 1 digit level.

All the series in the biennial survey are disaggregated by sex, statute, region and age group.

- Industrial statistics structural survey
  - employees by branch (NACE 3-digit)
  - hours of work.

The annual survey is currently published six years in arrears. It covers only firms employing more than 20 people.

- Industrial short-term trends provides indices on
  - number of employees by branch,
  - wages and salaries (for NACE 2-digit, sectors 1-5 with some 3-digit and some gaps).

This is updated monthly, based on a survey of firms employing more than 20 people.

- National accounts (ESA) provides
  - total population,
  - occupied population,
  - wage and salary earners (by 10 sectors).

The national accounts data appear annually, approximately one year in arrears.

Employment: strengths and weaknesses

There are both strengths and weaknesses in *the existing scheme.* The strengths include:

- detailed coverage of employment in the industrial sector (NACE 1-5);
- timeliness in the case of the industrial trend indicators;
- satisfactory annual cover of the labour force as a whole;
- detailed cover of many aspects every two years via the labour force survey.

However, there are problems:

- ambiguity of indicators: for example, up to four different figures may be obtained for manufacturing employment:
  - from the annual social statistics series,
  - from the labour force survey,
  - from the industrial structure survey,
  - from the national accounts;
- long delays:
  labour force survey data is up to two years in arrears in publication; the industrial structure survey is currently running some six years later;

- serious gaps:
  there is very little data on skills and professions in employment; there is a shortage of complete, consistent and comparable data on working time; the service sector receives little detailed cover; regional data is patchy and often unsure; there are significant gaps in the coverage of the industrial trend indicators; there are major problems with the use of Greek data due to differences of coverage and definition.

Unemployment: questions and answers

On unemployment, the questions to be asked are similar, with obvious modifications for the subject matter.

The sources of response include:
- the monthly note in the social statistics series which provides:
  - registered unemployment by sex,
  - unemployment rates by sex,
  - registered unemployment under 25 by sex,
  - new registrations of unemployed,
  - vacancies outstanding,
  - some denied series.
- periodic notes provide additional biannual material on:
  - principle occupational groups by sex,
  - principle branches of economic activity as well as annual material on:
    - unemployment by age classes and sex,
    - duration of unemployment by six classes and sex.

Monthly data on registered unemployment by region has now also been provided. In addition to this, the labour force sample survey provides data on unemployment which is subject to considerable disaggregation.

Unemployment: advantages and disadvantages

The advantages of the current system include:
- standardized treatment of registered unemployment,
- rapid and frequent presentation of most data.

Disadvantages include:
- non-comparability (apparent contradiction) between LFSS and registered unemployment,
- significant gaps in monthly, biannual and annual data,
- lack of a common skill classification,
- lack of data on migrant worker unemployment,
- lack of a common basis for interregional comparison (i. e. no regional unemployment rates; lack of regional cover for young people).

DATA FOR BASIC STUDIES

The problem

The problem of data for basic studies and the quantification of policy proposals is that it is hard to foresee what sort of questions the analyst will ask of the data. For example, the

economist (and the same applies for other professions) will have his own *a priori* model adapted from the history of economic thought to his personal views experience and needs. His prime requirement in quantifying his model is likely to be for data that fit his theoretical concepts. Indeed, he may be willing to sacrifice something in the way of timeliness in return for appropriateness.

If in the face of past failures the analyst develops a new approach, the problems of data provision will be greatly magnified. The development of segmentation theories of the labour market, for example, has created a demand for data formerly considered not of great importance.

Thus, because of the long lead times in developing new data, planning for this part of the policymaking process involves provision for questions not yet asked. This implies a preference for certain data sources over others, because some sources offer greater flexibility in the type of questions they can respond to. Proxy variables are a particularly weak source in this regard. These data, often by-products of the administrative process, may be quite adequate for monitoring, but as the questions asked of them become more refined, they are less and less suitable to provide answers.

The most obvious example is the use of registered unemployment. This data is conveniently obtained as a by-product of the process of job-search and drawing of unemployment benefit. It is probably an accurate description of certain aspects of the burden of work at employment and unemployment benefit offices. However, it is only a proxy for other important concepts, such as labour slack and social distress. Thus the more precise are the questions posed about labour slack (by which is meant the extent of economically unused labour resources) the less likely it is that registered unemployment will provide satisfactory answers (see the study prepared by A. MADDISON, 'Unemployment and labour slack').

On the other hand, data obtained from survey sources, in which relatively complex questionnaires have been established, offer the possibility of development of cross-tabulation of responses subject only to the limitations of statistical significance. The scope for answering unforeseen questions is therefore high. Further, if the survey is taking place regularly, the inclusion of additional questions is not too difficult and may not require a long lead time.

The labour force: survey as a source

The labour force survey is an obvious case in point. Having been developed in the 1960s and early 1970s, it has come to be recognized as an exceedingly useful source of information on many aspects of the labour market. Even if it was somewhat underused in its early years, the value of the original investment is now to be seen as there is a substantial body of information on which to draw. Much of the value which is now being derived from the labour force survey is as a result of the investment made in the 1960s, when there was no shortage of those who doubted its value.

The strength of the labour force survey lies in its flexibility and richness as a source, in its common methodology across the Member States and in its regular appearance.

It has weaknesses too. Thus the concept of the labour force used is not reconciled with that in other sources. It is only organized biennially, and the delay in processing and publishing its

results is too long. Also, it has provided results on unemployment which have been exceedingly hard to interpret and have tended to detract from the value of its employment results.

THREE EXAMPLES OF DEVELOPING NEEDS FOR STATISTICS

The use of statistics in three current areas of policymaking illustrates the problems faced.

1. Regional policy

Data on labour market structure and trends is crucial for the development of Community regional policy, including the determination of regions which should benefit from Community regional aids.

Work on the analysis of regional employment and unemployment, including preliminary work on projection of labour market balances has already been carried out in the first period report on the social and economic situation of the regions of the Community[1] which was completed at the end of 1980. Preparation of the second periodic report - due for completion in 1983 - has already commenced and a number of particular problems relating to regional labour market statistics are receiving special attention. These include development of regional data at level III instead of at level II as hitherto; this involves development of data notably on unemployment for approximately 600 level III regions as against 112 level II regions.

It is also necessary to ensure that regional unemployment data - notably structural unemployment - is sufficiently solid for analysing regional problems. Finally, further work on labour market projections is essential, both in respect of the supply of labour and more particularly for labour demand.

Eurostat has been endeavouring in consultation with national statistical authorities to improve the quality and enlarge the scope of regional labour market statistics. This work must be seen also in the context of the Council Resolution of 6 February 1979 concerning the guidelines for Community regional policy which pointed to the intention of the Commission and the Member States to jointly improve the statistical and regional analysis machinery with a view to the establishment of a comprehensive system of analysis and policy formulation for Community regional policy. In view of the critical importance of labour market conditions in the present Community economic situation, it is important that the responsible authorities in the Member States give priority to the development and updating of appropriate statistics on employment and unemployment to be used both in the preparation of the next periodic report and for assessment of the regional impact of Community policies generally. This latter is most important for the determination of where specific Community regional development measures to be financed from the non-quota section of the European Regional Development Fund should be implemented.

---

[1] The Regions of Europe [COM(80) 816 final].

2. Job creation

Identified as a priority issue by the Jumbo Council and the European Council, policy is being developed around the view that there is scope for new job creation in:

(i) areas of new technology;

(ii) energy conservation and new sources of energy;

(iii) small scale job-creation through different types of enterprises including cooperatives;

(iv) meeting locally-identified demand.

For the policy to be developed beyond the level of generalities, it requires statistical support to answer questions of the following types:

(i) how is employment distributed across firms of different sizes in the main sectors?

(ii) what is the detailed sectoral breakdown of employment within the economy?

(iii) how are working hours affected by sector and size of enterprise?

(iv) what are the relative skill requirements of different types and sizes of enterprises?

This would enable tentative answers to be given to a range of primary questions. It would involve showing whether small firms were indeed the major job-creators in the service sector, or were a significant part of the whole. It would enable a careful look within services for the sub-sectors which are the main creators of employment. It would show what the prospects were for creating additional part-time employment through small businesses or in certain types of services and what are the training requirements for different types or scales of enterprise.

Answers to these questions are clearly necessary for this area of policy to be developed. The statistics currently available have several areas of weakness, notably in the cover of the service sector, the size of enterprise and in skill requirements.

The service sector has been for the whole of the Communities' existence the main source of new employment. It is certainly to be hoped that it will continue to be so, but with the incidence of new technologies on areas such as office work, it is becoming more and more important to know what is going on within the sector rather than across the services as a whole. In the absence of data, the belief that much service employment is in small businesses can neither be confirmed nor denied.

The time has surely come for an extension of detailed structural employment data to cover the service sector. A gap in our knowledge which covers 50% of all employment is too large.

3. The European Social Fund

The Fund requires data for the effective management of its resources, to enable it to achieve its targets. These are broadly the provision of training assistance and pilot project aid in depressed regions, to certain sectors in decline, to certain groups such as the young and the handicapped and in areas of rapid technological change.

The best assistance to the Fund would clearly be provided by quantitative estimates of the demand and supply of key skills in the different regions of the Community. With this should go an evaluation of the numbers of employers likely to be affected in sectors in decline, by region. The importance of particular groups (youth, handicapped) needs to be taken into account through data on total numbers present on the labour market and flows of new labour market entrants.

Such support is made impossible by the total absence of data on employment by skill. Also, the regional disaggregation of sectoral employment data is limited. Data on the totals within special groups are much easier to find than the flows of new entrants.

A basic tool for guidance is the unemployment rate by region, on a standardized basis. Regional levels of registered unemployment are now published, but rates are not yet available. Thus the regional rates of unemployment provided biennially in the labour force survey are the only ones available. However, the disparity between labour force survey figures and registered unemployment figures has led to a widespread reluctance to use the survey figures. Data on regions to level III are required, and their timeliness is of great importance.

With the Fund currently under review, it is to be hoped that it can be made a more flexible instrument of Community social policy, appropriate to aid in the solution of current problems. For this to be fully realized will require progressive development of the statistical support provided to the Fund.

PRIORITIES FOR POLICYMAKERS

From this it can be seen that the existing structure of employment and unemployment statistics is substantial and meets with a large measure of approval from those involved in the policymaking process. If there are expressions of dissatisfaction from time to time, the Statistical Office can always point to its development programme. This should not cause us to close our eyes to existing weaknesses and the need to remedy them. In the present situation, the following four areas can be retained as priorities for urgent development:

1. Filling the gaps

In the existing cover of unemployment, the gaps consist primarily of gaps in the cover of under-25s and migrants (who have recently disappeared from the statistics). Also, the provision of absolute figures, while a major advance, does not enable easy interregional comparison. Development of unemployment rates to permit ready comparison of regional situations across the Community is urgent.

As for employment, it is apparent from what has gone before that regional cover is inadequate. Cover down to level III (600 regions) is required to help in the preparation of adequate regional policies and the Social Fund too needs data at regional level.

Service employment is likely to remain the source of an increasing share of the total number of jobs in the Community. The weakness of data presently available to cover this sector

seriously limits the value of the analyses that can be carried out, both as regards market and non-market services. Further, with increased emphasis on small-scale job creation, a gap is becoming apparent as regards employment in the different types of small enterprises.

2. Extending the cover

Two major areas of policy debate at present are concerned with vocational training and reorganization of working time.

Under vocational training, reference has already been made to the absence of a common Community classification of skills. Statistics of unemployment by major national skill groups are provided periodically, but this is a poor substitute for a common approach. It is hard to overemphasize the importance of such information at the present, with education and vocational training policies responding to the challenges of innovation and new technology; with the European Social Fund seeking criteria for optimal use of its resources and with analytical data being required in preparation for the revision of its articles; with Cedefop in Berlin developing detailed material on training and job requirements.

Data on hours of work exist, but with the intensive analysis arising from the debate on the reorganization of labour time they have been found to be inadequate as regards completeness of cover, regularity and disaggregation. In this area, the advance investment has proved inadequate for the detail and originality of the analyses now being attempted, although the labour force survey is of considerable use.

3. Resolving conceptual issues

There are too many alternative concepts and definitions floating around in the field of employment statistics. Not only is it distressing to the policymaker to find his figure confronted by another, from an apparently authoratative source, which gives a different view, but it also leads to confusion and distortion in the process of analysis to find discontinuities and rival series.

As a first stage, it is important to have a clear statement of why series from different sources differ; as a next stage it is desirable to print alternative series next to each other in one statistical publication; ultimately, it is desirable to eliminate differences or to provide the information that enables the user to pass from one series to the other. If this last does not prove possible in every case, a decision should be taken as to which series, for example, constitutes employment by branch and to give it due prominence.

Where series are harmonized, it would be very much appreciated by some of the users if changes in definition could be highlighted. This should save a lot of time for time-series analysts who could straight away re-estimate their equations rather than puzzling over the sudden appearance of large residuals.

4. Building for the future

The problem of employment and unemployment is likely to be with us for some time to come. However, it is already clear that some of today's issues will be less relevant in five years' time. The character of youth unemployment will undoubtedly change as the 'youth bulge' tapers off, and the Community will find itself again faced with the problems of providing for answers to unforeseen questions.

The labour force survey is the obvious source for improved coverage. Yet it has current problems. As every statistician knows, useful information must be relevant, regular, reliable and received on time. The labour force survey is strong on relevance, but its regularity is less than most users would like. Its reliability in some respects has been (often unfairly) questioned. Alas, it is hardly possible to say that it is received on time.

To a policy-oriented user, many of the problems could be overcome by making the survey annual. Assuming that the data could be processed within the year, this would take care of the problems of regularity and timeliness. Its reliability would be easier to assess in the context of an annual series and where improvements were carried out the results would be more rapidly available. Reconciliation with alternative population estimates would also be easier if annual series were being compared.

CONCLUSION

Statistics are not to be confused with reality; the best they can hope to be is a summary statement of it. But at different stages in the policymaking process, policymakers want their summaries in different forms. That is one of the reasons why data provision for policymakers requires so much investment.

The crisis of employment has found the Statistical Office able to reap the rewards of much earlier investment. At the same time, it has exposed gaps and weaknesses.

The enlargement of the Community has created large new areas requiring urgent attention - Greece and the applicant States. Those involved in policymaking will not tire of seeking completion, extension and harmonization of data to fill the current gaps. Nor will they forgo the right to ask questions without warning in the future and hope to find the answers ready prepared.

1.3. Statistical needs for the development of Community regional policy

(B. F. McNAMARA, DG XVI - Regional Policy)

1. Employment and unemployment statistics have always occupied a central place both in justifying Community regional policy and in its development. The purpose of the present paper is to specify the present requirements of the Commission in the matter of labour force statistics so as to contribute to the ongoing development of Community regional policy.

2. Policy development now involves a number of clearly defined steps. First there is the task of drawing up the periodic report on the social and economic situation of the regions of the Community. This task was given to the Commission by Council Resolution of 6 February 1979[1] and the first periodic report 'The Regions of Europe' was sent to the Council in December 1980; the next report is due to be prepared for mid-1983.

3. On the basis of the periodic report, the Commission prepares guidelines on the priorities for Community regional policy and any necessary draft legislation to implement those priorities. The recent new guidelines of July 1981[2] and the draft revision of the Regional Fund Regulation[3] together with the Commission report to the Council in application of the mandate of 30 May 1980[4] represent the results of the recent review of Community regional policy. This review involved, *inter alia,* the analysis of the regional labour market situation - notably long-term unemployment - as a key factor in relation to the establishment of priorities for Community regional policy.

4. In addition to the chain of events starting with the periodic report, the development of Community regional policy involves a number of ongoing tasks which demand the availability of labour market statistics. These include:

(i) coordination of national regional programmes and the periodic review of national regional aid systems;

(ii) assessment of the regional impact of different Community policies and the development of specific Community actions financed from the non-quota section of the Regional Fund to mitigate the regional effects of such Community policies.

5. It is within this framework that development of regional labour market statistics must be seen. Moreover, the phenomenon of mass unemployment as a continuing feature of the labour market has led to a more sophisticated approach to analysis of its characteristics. This coupled with an increased capability for analysis of labour market statistics associated with extension of data-processing techniques has meant that the demands for more detailed and better data on employment and unemployment are continually rising.

6. Taking each of the stages in the development of policy just mentioned, the following is an indication of the data requirements in the matter of employment and unemployment.

PERIODIC REPORT

7. The first periodic report contained in Chapter 3 - Labour market - an analysis of the trends and structure of unemployment in level II regions of the Community. Particular attention was given to the analysis of the structure of unemployment and to regional labour market projections. In relation to structural unemployment, one of the key indicators used in establishing the maps of intensity of regional problems in the final chapter of the report -

[1] OJ C 36 of 9. 2. 1979.
[2] COM(81) 152 final of 24. 7. 1981.
[3] COM(81) 589 final of 26. 10. 1981.
[4] COM(81) 300 final of 24. 6. 1981.

particularly Map 8.1 - was unemployment of six months and over. This map has since been developed as a basis for the concentration of Community regional aids proposed in the revision of the Fund regulation.

8. For the next periodic report it will be necessary to ensure that adequate statistics of structural unemployment are available for regional analysis purposes. The main sources of data will be the labour force surveys together with data on registered unemployed. In relation to the latter, it is important that, so far as possible, greater international comparability of statistics of registered unemployed be assured. The Statistical Office of the Community together with the Directorate-General for Regional Policy are endeavouring to ensure the value of unemployment statistics required for the report.

9. Employment statistics are receiving increasing attention in the context of labour market and sectoral analysis. The emphasis here is not the measurement of disparities but the explanation of their formation. Even a quantitative comprehension of unemployment requires a proper assessment of total employment. It cannot be the same, for instance, for a region to have high rates of unemployment because a region's employment increase cannot match the increase in the labour force than if a region has a declining or static labour force but never had an adequate employment base. Considerable progress has already been made on the provision of sectoral employment data either through the detailed breakdown of existing categories such as that employed for industry (NACE 2 digits) or because alternative sources with supplementary information exist (agriculture). The overriding need is for more detailed information on the service sector for which at the current time limited information only is obtainable from the labour force survey and whose nature furthermore prevents the extraction of time series. Producer market orientated services in particular should be given the highest priority in the collection of employment data.

10. Increasing differences in the level of productivity rather than straightforward sectoral composition or physical location are being seen as the key to different national performances, and within Member States regional disparities or homogeneity in economic growth play a leading role in determining national growth rates. No meaningful analysis of productivity can be made without comprehensive employment data.

11. An important area is the projection of the labour market. The first periodic report examined only one aspect of regional labour market balances, namely the supply of labour likely to be available on the basis of projections of demographic trends. The report indicated the tentative nature of the studies so far carried out and pointed to the need for further work in order to improve the quality of the forecasts. A study is now being undertaken in preparation for the second report and it is important that adequate regional data on labour supply - as well as on the demand for labour - be available for that study. Since the demographic and other trends which account for the growth of the labour force are fairly well known, most attention needs to be turned to the employment situation in order to make reliable labour market projections. The need for such projections has become increasingly clear as the focus has shifted from a static view of regional policy based on existing disparities to a more dynamic one for which regional potential is considered to be of crucial importance.

12. An important criticism of the first report was the fact that in conducting the analysis for level II regions, regional problems were not fully brought out. The Statistical Office of the Community has now arranged with the Member States for the supply of data, including statistics of employment and unemployment, for level III regions. It is hoped that this data,

when available, will enable the Commission to deepen its analysis, notably of labour market problems.

13. In general, it can be said therefore that preparation of the periodic report will give rise to increased demands for statistics of employment and unemployment. Moreover, since the analysis in the report covers all regions of the Community, the harmonization of statistics is important so as to increase their comparability.

PROGRAMMES AND REGIONAL AID SYSTEMS

14. The labour market data requirements specified above for the periodic report can, by and large, also be regarded as covering development of regional programmes and monitoring of aid systems. Of particular interest to the Programmes Division of DG XVI are statistics on the basis of which labour market balances can be projected. The data at level III will also be valuable in appraising regional aid systems.

REGIONAL IMPACT ASSESSMENT

15. The assessment of the regional impact of Community policies and the preparation of non-quota actions demands analyses - often of an *ad hoc* kind - which go beyond the levels of detailed statistics discussed so far. We are speaking here of studying, for example, the Community action required to assist areas adversely affected by sectoral restructuring problems or of the needs to eliminate regional bottlenecks in the way of implementation of Community policies (e. g. enlargement, commercial policy). The geographical and sectoral level of analysis here may be a good deal more detailed than for more generalized regional studies. While the criteria used in regional impact assessments are for the most part the same as those used in the periodic report, including in particular long-term unemployment and value added and sectoral productivity, to the extent that available data permits, the analysis endeavours to localize the regional problems to the zones particularly affected by policies.

2. *Utilization of the potential of statistics*

2.1. Monitoring the labour market

- A proposal for a comprehensive approach to official statistics
(A. MADDISON, University of Groningen)

All of the EC economies were significantly affected by the recessions of 1974–75 and 1980–81, and growth between these two recessions was also below potential. As a result there is now much greater slack in labour markets than at any other time in the postwar period.

Most countries publish a monthly official measure of unemployment, and these indicators are a matter of intense public interest in the present situation. The scope and significance of these national indicators is now more comparable than in the past. Generally they have evolved through four stages, (a) figures for trade union members; (b) figures for those applying for jobs at labour exchanges; (c) figures for those people receiving unemployment benefits, either as insurance or social welfare claimants; (d) figures derived from census type enquiries or labour force sample surveys. Most countries have moved towards the definitions of the labour force and unemployment which correspond to the recommendations of the ILO Conference of Labour Statisticians, and although the statistics are by no means standardized, and official figures (e. g. in France, the Federal Republic of Germany, the Netherlands and the UK) are often still in the third stage, the degree of deviation between the official national measures and the standardized system is now fairly well known.[1]

However, serious problems for comparability and policy analysis arise because unemployment (even when measured in a standardized fashion) is only a partial measure of labour slack. Unemployment can be significantly mitigated by reductions in labour supply due to a fall or reversal in the intake of immigrants, policy-induced withdrawals from the labour market into education, training or retirement, and reductions in time worked. Likewise, labour hoarding by firms who are induced in various ways to retain redundant workers, can also mitigate unemployment. Because of these problems 'Monitoring the labour market'[2] (report produced for the Commission of the European Communities) recommended a more comprehensive approach to labour market analysis, in which the different dimensions of labour supply and demand would be fully articulated in a standardized set of accounts. The purpose of such accounts is to improve comparative analysis of the labour market situation in EC countries, and of the efficacy of policy.

---

[1] See *International Recommendations on Labour Statistics,* ILO, Geneva, 1976 and *Measuring Employment and Unemployment,* OECD, Paris 1979 for the standard recommendations and the national deviations from them. C. SORRENTINO, *International Comparisons of Unemployment,* US Bureau of Labor Statistics, Washington, 1978, provides detailed adjustments for greater comparability between nine countries.

[2] See *Monitoring the labour market* by Angus MADDISON (Document of the Commission of the European Communities, Ref. V/144/80).

'Monitoring the labour market' presented the new kind of account in comparable form on an annual basis for 1960–78 for the three biggest EC countries - France, Germany, and the UK. This was possible by dint of a good deal of detailed work merging data from different kinds of source. If such accounts are to be kept up to date on a regular basis, data merging from different sources will continue to be necessary, as it is for example in existing national accounting procedures. The major sources for such estimates are labour force sample surveys, employer surveys of earnings and working hours, and social security data on different types of compensated work absence. The reliability and topicality of such estimates and their extension to all EC countries would be greatly facilitated by converting the present EC labour force sample survey from a biennial to a six-monthly basis. It would also be most helpful to have greater coordination and standardization of national employer surveys which cover working time, or to introduce an EC survey of this character.

The proposed monitoring in its simplest and most aggregate form consists of Tables 1–5 below, which illustrate the approach in terms of updated and revised German data supplied by the IAB in Nuremberg.

DEMOGRAPHIC CONTEXT AND ACTIVITY RATES (Table 1)

The first table simply sets labour force developments in a demographic context, showing activity rates by sex. The main purpose of the demographic account is to show the trend in activity rates, variation between different population groups, and to reveal the possible presence of the 'discouraged' worker phenomenon, i. e. reductions in activity due to people moving out of the labour force because they cannot find work or because they have some social security income to induce them to do so. This applies to some extent in most countries to male workers, but the opposite 'added worker' phenomenon often applies to female workers. For them, the trend in activity rate is generally upward as family responsibilities have declined, but extension of social insurance benefits may well accelerate their willingness to enter the labour market in times of slack activity, for even irregular employment may thus offer greater prospects of augmenting family income than in former times.

Table 1 in the annex shows the demographic account in its simplest form. The presentation proposed there is not novel, but it is by no means standard practice to present data in this form. Table 1 could usefully be extended to include further breakdowns by age, marital status and family responsibility, with categorization of reasons for non-activity, which can be collected in labour force sample surveys. The breakdown of matched information on demography and labour force activity in the present EC survey is probably adequate as far as age and marital status are concerned, but might be extended to include further questions on reasons for non-activity, or for seeking part-time rather than full-time employment.

An important question for study is the extent to which there are problems of inadequate coverage because of the existence of a 'hidden economy', with people engaged in activities which are undeclared because of evasion of tax or social security laws.[1]

[1] There is a growing literature on this topic, usefully surveyed in a paper by Derek BLADES, *The Hidden Economy and the National Accounts,* 1981, who is preparing a 1983 IARIW session on this topic.

Another problem here is a need for more comparable coverage of family workers, particularly those in the UK which are omitted from the EC survey.

STOCK OF MIGRANTS AND THEIR LABOUR MARKET CHARACTERISTICS

The second table in the accounts refers to foreign population, labour force, employment and unemployment. The role of such workers is already significant (7% of the labour force in France, 8% in Germany) and will increase when the EC is extended to include more southern European countries. Furthermore, migration controls are now a significant instrument of labour market policy. Present information on the foreign population is generally inadequate, and the EC survey is an obvious source of comparable information.

Table 2 shows the foreign labour force information in its simplest form, but this could also be usefully further subdivided by nationality, age, sex, marital status.

BREAKDOWN OF EMPLOYMENT AND UNEMPLOYMENT RATES (Table 3)

This table is the most traditional in the proposed accounts. It simply shows aggregate employment and unemployment broken down by sex. It can also be expanded by age, marital status, etc. in line with the breakdowns used in Tables 1 and 2.

The problems of standardizing unemployment statistics to ensure uniform treatment of marginal categories such as students are discussed at some length in C. SORRENTINO, op. cit. They also emerge fairly clearly from OECD, op. cit.

ANNUAL WORKING TIME PER PERSON (Tables 4 and 5)

This is the area in which the greatest detail is presented in this proposal. It has been rather neglected in the past, but substantial progress can be made by merging data from different sources.

Table 4 shows the estimate of the average number of days worked per year, with an eightfold breakdown of reasons for not working. It can be seen that the long-term change has been quite substantial with a reduction of 40 days worked per year from 1960 to 1980. The main reasons for this are the disappearance of Saturday working and the increase in holidays, though in countries other than Germany there has generally been a substantial increase in sickness absence as well. This kind of information is perhaps best collected from employer surveys or social security records. Information on public holiday absence is fairly readily available, and the main point to be investigated is the extent to which holidays falling on weekends are compensated by equivalent time-off on normal work days. This does not seem to be German practice, but it is largely the case elsewhere. Information on days of vacation and sickness can be most reliably obtained by employer surveys, and sickness absence can also be crosschecked from social security records.

Columns 7, 8 and 9 in Table 4 are not nearly so important as those in columns 4 to 6, and here again they are probably best obtained by employer surveys or social security records.

Absence for bad weather reasons is recorded in Germany because of official insurance payments under this head. In other countries, bad weather time losses are more difficult to identify.

Finally, time lost through industrial disputes is usually rather well recorded in existing sources, and its total incidence is generally very low.[1]

Table 5 shows the total number of hours worked per year which is derived from Table 4 and from a fourfold breakdown of weekly working hours. As with Table 4, this type of information is usually more reliable when derived from employers than from respondents to a labour force sample survey, but it is preferable to develop both sources of information, and do more crosschecking between existing Eurostat and national data.

It should be noted that when Tables 1-5 are available, they contribute very substantially to productivity analysis, which is a major field in itself, which can also throw light on labour market developments.

USE-OF-POTENTIAL ANALYSIS

Once the monitoring account (Tables 1-5) is available it is relatively easy to use the material analytically as is done in Table 6 to measure labour slack. Basically, this table is a comparison between the actual situation in a given year, and that which would have prevailed if full use had been made of labour potential. The results depend to a considerable extent on judgments, which can quite legitimately be based on different criteria. Specifically, the judgments required involve estimates of potential population (i. e. the size of the foreign migrant population under alternative 'full employment' conditions, the potential activity rate(s) in full-employment conditions, the full-employment level of unemployment, and the trend level of working hours per person).

DISAGGREGATING UNEMPLOYMENT BY COMPONENT

In addition to the above proposals for labour market monitoring, the original report discussed some of the problems of disaggregating unemployment by components - frictional, seasonal, structural, and demand deficient. It is not suggested here that such breakdowns be integrated in the standard manpower accounts, because breakdowns of this kind can only be carried out with data on registered unemployment, this being normally the kind of source which provides the monthly data needed for seasonal analysis, the degree of reliable regional or occupational breakdown needed for structural analysis, or the gross flows needed for frictional diagnosis.

In fact, this type of analysis resembles the use-of-potential approach, in that the outcome depends heavily on judgments which may legitimately vary according to the theoretical underpinning of the argument. The different categories of unemployment are also of such an

[1] There are problems of comparability but the size of the problem is negligible in the global context of manpower accounts. See M. FISHER, *Measurement of Labour Disputes and Their Economic Effects,* OECD Paris, 1973.

interlinked character, that the breakdown by components is bound to have some arbitrary elements.

FUNCTIONAL BUDGETS FOR MANPOWER AND EMPLOYMENT POLICY

'Monitoring the labour market' contained a proposal for the creation of a functional budget pulling together expenditure on manpower and employment policy in comparable analytic form. This type of government expenditure has grown enormously since 1973, but is carried out by a variety of government departments. Statistical reporting on their activities is usually scattered in various administrative documents, but regular publication of consolidated accounts could help considerably towards better diagnosis of the scope and efficacy of national policy. It could also lay the basis for international comparison of policy action and options, which is now in its infancy in spite of the vital current importance of this area.

Table 7 presents a revised and updated version of this account for France, on which more detailed work has been done than on the other countries, as a follow-up on the previous proposals.[1]

[1] See also *Évaluation macro-économique des politiques de l'emploi 1973–1978,* Etude 79/455 pour le Ministère du Travail, Aix-en-Provence, December, 1979.

Table 1 – Labour force, population of working age and activity rates in Germany, 1960–80

Years	Total labour force (all ages) (000s)	Total population aged 15–64 (000s)	Activity rate (col. 1:2) (%)	Male labour force (all ages) (000s)	Male population aged 15–64 (000s)	Male activity rate (col. 4:5) (%)	Female labour force (all ages) (000s)	Female population aged 15–64 (000s)	Female activity rate (col. 7:8) (%)
1960	26 351	37 697	69.9	16 555	17 598	94.1	9 796	20 099	48.7
1973	26 921	39 509	68.1	17 082	19 262	88.7	9 840	20 247	48.6
1974	26 737	39 654	67.4	16 870	19 370	87.1	9 868	20 284	48.6
1975	26 340	39 606	66.5	16 358	19 344	85.5	9 803	20 262	48.4
1976	26 093	39 593	65.9	16 338	19 356	84.4	9 756	20 236	48.2
1977	26 023	39 732	65.5	16 229	19 471	83.3	9 794	20 261	48.3
1978	26 174	39 945	65.5	16 304	19 635	83.5	9 849	20 310	48.5
1979	26 395	40 287	65.5	16 370	19 883	82.3	10 025	20 404	49.1
1980	26 629	40 530	65.7	16 504	(20 000)	82.5	10 125	(20 530)	49.3

Table 2 – Foreigners in population, labour force, employment, and unemployment in Germany, 1960–80

Years	Foreign population aged 15–64 (000s)	Foreign labour force (000s)	Foreign activity rate (%)	Foreigners as % of labour force	Foreigners employed (000s)	Foreigners unemployed (000s)
1960	(346)	302	(87.4)	1.1	301	1
1973	2 871	2 580	89.9	9.6	2 560	20
1974	2 997	2 517	83.9	9.4	2 448	69
1975	2 884	2 284	79.2	8.7	2 133	151
1976	2 765	2 110	76.2	8.1	2 004	106
1977	2 842	2 055	72.0	7.9	1 957	98
1978	2 739	2 052	73.9	7.8	1 948	104
1979	2 766	2 115	76.5	8.0	2 022	93
1980	2 971	2 175	73.2	8.2	2 068	107

Table 3 - Employment, unemployment, and employment rates by sex in Germany, 1960–80

Years	Employment (000s)	Unemployment (000s)	Employment as % of labour force	Male employment (000s)	Male unemployment (000s)	Male employment as % of male labour force	Female employment (000s)	Female unemployment (000s)	Female employment as % of labour force
1960	26 080	271	99.0	16 377	178	98.9	9 703	93	99.1
1973	26 648	273	99.0	16 932	150	99.1	9 716	124	98.7
1974	26 155	582	97.8	16 545	325	98.1	9 610	258	97.4
1975	25 266	1 074	95.9	15 915	623	96.2	9 351	452	95.4
1976	25 033	1 060	95.9	15 771	567	96.5	9 262	494	94.9
1977	24 993	1 030	96.0	15 711	518	96.8	9 282	512	94.8
1978	25 181	993	96.2	15 815	489	97.0	9 345	504	94.9
1979	25 519	876	96.7	15 953	417	97.5	9 566	459	95.4
1980	25 741	889	96.7	16 078	426	97.4	9 663	462	95.4

Table 4 - Average allocation of days per year per employee in Germany, 1960–80

Years	Days per year	Free Sundays per year	Free Saturdays per year	Public holidays	Days of vacation	Days of incapacity	Days lost through bad weather	Days lost for personal reasons[1]	Time lost through industrial disputes	Days worked
1960	366	52	26.50	9.80	15.52	13.90	0.61		0.00	247.67
1973	365	52	52.00	11.50	23.04	13.66	1.06		0.02	211.72
1974	365	52	52.00	12.50	23.67	13.20	0.59		0.05	210.99
1975	365	52	52.00	12.20	24.27	11.97	0.60		0.00	211.96
1976	366	52	52.00	8.90	24.70	12.68	0.99		0.02	214.71
1977	365	52	53.00	8.80	25.30	12.42	0.88		0.00	212.60
1978	365	53	52.00	9.80	26.30	12.54	1.04		0.24	210.04
1979	365	52	52.00	11.50	27.30	12.78	1.47		0.02	207.93
1980	366	52	52.00	11.70	28.30	12.88	1.22		0.06	207.84

[1] *Pro memoria* only. In the case of Germany, deductions for absence of this kind are not necessary as the overtime figure is net of such absence, but its magnitude is not known.

Table 5 - Hours worked per person and total hours worked in Germany, 1960-80

Years	Basic weekly hours of full-time workers	Impact of part-time workers hours on average weekly hours worked	Weekly overtime hours	Average weekly short-time hours	Average weekly hours worked per employee	Average hours worked per employee per day	Average hours worked per employee per year	Total hours worked per year (million)
1960	44.56	- 0.45	2.15	- 0.00	46.26	8.41	2 082.9	54 322
1973	40.91	- 1.28	3.54	- 0.02	43.15	8.63	1 827.1	48 689
1974	40.73	- 1.27	3.21	- 0.15	42.50	8.50	1 793.4	46 906
1975	40.32	- 1.31	2.76	- 0.42	41.35	8.27	1 752.9	44 289
1976	40.25	- 1.28	2.77	- 0.14	41.60	8.32	1 786.4	44 719
1977	40.22	- 1.37	2.60	- 0.12	41.35	8.27	1 758.2	43 943
1978	40.18	- 1.37	2.55	- 0.10	41.25	8.25	1 733.2	43 644
1979	40.15	- 1.41	2.65	- 0.05	41.34	8.27	1 719.6	43 882
1980	40.12	- 1.49	2.45	- 0.09	40.99	8.20	1 704.3	43 870

Table 6 – Comparison of actual and potential labour input in Germany, 1973–80

Years	Basic weekly hours per employee (full and part-time)	Net overtime worked per week	Actual weekly hours worked per employee	Potential weekly working hours per employee	Actual daily hours per employee	Potential daily hours per employee	Actual days worked per year	Actual annual hours worked per person	Potential annual hours per person	Ratio of actual to potential annual hours per person
1973	39.63	3.52	43.15	43.15	8.63	8.63	211.72	1 827.1	1 827.1	100.00
1974	39.46	3.06	42.50	42.98	8.50	8.60	210.99	1 793.4	1 814.5	98.84
1975	39.01	2.34	41.35	42.53	8.27	8.51	211.96	1 752.9	1 803.8	97.18
1976	38.97	2.63	41.60	42.49	8.32	8.50	214.71	1 786.4	1 825.0	97.88
1977	38.85	2.48	41.35	42.37	8.27	8.47	212.60	1 758.2	1 800.7	97.64
1978	38.81	2.45	41.25	42.33	8.25	8.47	210.08	1 733.2	1 779.4	97.40
1979	38.74	2.60	41.34	42.26	8.26	8.45	207.93	1 719.6	1 757.0	97.87
1980	38.63	2.36	40.99	42.15	8.20	8.43	207.84	1 704.3	1 752.1	97.27

Table 6 (continued)

Years	Actual population aged 15–64 (millions)	Potential population aged 15–64 (millions)	Ratio of actual to potential population aged 15–64	Actual activity rate	Potential activity rate	Ratio of actual to potential activity rate	Ratio of actual to potential employment rate	Actual total hours worked (millions)	Potential total hours worked (millions)	Ratio of actual to potential labour input
1973	39.509	39.509	100.00	68.1	68.1	100.00	100.00	48.689	48.689	100.00
1974	39.654	39.724	99.82	67.4	67.9	99.26	98.79	46.906	48.452	96.81
1975	39.606	39.935	99.18	66.5	67.6	98.37	96.87	44.289	48.209	91.87
1976	39.593	40.116	98.70	65.9	67.4	97.77	96.87	44.719	48.851	91.54
1977	39.732	40.316	98.55	65.5	67.2	97.47	96.97	43.943	48.297	90.98
1978	39.945	40.532	98.55	65.5	67.0	97.76	97.17	43.644	47.839	91.23
1979	40.287	40.804	98.73	65.5	66.8	98.05	97.68	43.882	47.412	92.55
1980	40.530	40.981	98.90	65.7	66.6	98.65	97.68	43.870	47.342	92.67

Table 7 - French expenditure on manpower and employment programmes 1973-79 *(FF million)*

	1973	1977	1978	1979
I - *Commitments to mitigate frictional, seasonal and structural unemployment*				
(a) Employment services	217.3	565.7	694.1	810.1
(b) Mobility grants	83.2	275.9	372.1	442.8
(c) Seasonal unemployment compensation	0.0	0.0	0.0	0.0
(d) Training and rehabilitation	5 683.1	12 623.7	14 899.4	17 714.1
(e) Regional development activities	239.3	436.2	428.4	478.0
(f) Sheltered employment programmes	57.8	92.4	272.6	469.3
Total of above	6 280.7	13 993.9	16 667.2	19 914.3
II - *Unemployment compensation and related transfers*	3 971.4	19 026.2	24 377.6	28 404.9
III - *Measures of an anticyclical character*				
(a) Costs of migration restrictions	0.0	110.0	250.0	260.0
(b) Costs of reducing domestic labour supply	1 124.8	2 115.2	3 861.5	6 128.9
(c) Short-time work compensation	41.2	747.1	792.8	773.3
(d) Public job creation	0.0	240.0	360.0	19.2
(e) Subsidies to private job creation	276.2	800.4	1 768.3	1 967.2
Total of above	1 442.2	4 012.7	7 032.6	9 148.6
Grand total I-III	11 694.3	37 032.8	48 077.4	57 467.8
of which: Capital items	343.0	335.0	353.6	371.3
Administrative costs	225.9	794.5	998.2	1 051.6

Source: Derived from R. Granier (13. 4. 81).

2.2. Towards an employment account

- Stocks and flows determining the labour market [1]

(L. REYHER, Institut für Arbeitsmarkt- und Berufsforschung (IAB)

1. INTRODUCTION, DEFINITION OF PROBLEM, AND OBJECTIVES

In most industrial countries, where there have been consistently high levels of unemployment over the past few years, there has been a considerable increase in the demands made on active employment and labour market policies. In many ways, the labour market situation in the 1980s will be even more problematical:

(a) *Underemployment* seems likely to persist for the rest of the decade on top of which there is a widespread excess supply of labour brought about by population growth.

(b) The structure of unemployment is becoming more and more rigid and it is becoming inreasingly difficult to reintegrate those who are disadvantaged by a double selection process - hence, *a selective labour market policy* is required.

(c) The lack of financial resources means that *all political measures have to be extremely cost effective.*

To achieve the latter aims, a high degree of transparency is essential. Information is required on structural factors, trends, flows, developments and the effects of measures. The data at present available provide only some of this information. The statistical basis of analyses and forecasts largely consists of figures relating to stocks and their net variations, which reflect only a part of reality and, in particular, provide no information as to the extent, structure and course of the events actually occurring on the labour market that, in most cases, appear only in the form of stock figures. To remedy this, analyses should also take into account statistical *information on flows* (or events, or gross variations). Diagnosis and forecasts will become much more realistic and precise if this is done. Thus, for example, if the total number of elderly unemployed persons dropped, widely differing conclusions would have to be drawn, depending on whether:

(a) the number of persons coming on to the register had remained unchanged but the number of persons leaving it had increased because they had found work, retired or emigrated, work creation measures have taken effect, etc.

or

(b) the number of persons leaving the register had remained unchanged but the number of persons coming on to it had dropped, because there were fewer people in the age group concerned, the protection against unfair dismissal had been improved, or for other reasons.

The example given is representative of many other similar situations and events. Moreover, there are other questions crucial to a diagnosis of the labour market situation which can be

[1] See REYHER, Lutz and BACH, Hans-Uwe, 'Arbeitskräfte-Gesamtrechnung - Bestände und Bewegungen am Arbeitsmarkt', in *MittAB, 4/80.*

answered only with the help of flow data: for example, in what way do contraction and expansion processes occur in individual sectors? To what extent are they due to movements from one sector to another and to what extent do they reflect the fact that older workers are leaving, and young persons joining, the labour force? How large are the fluctuations in each sector and what pattern do the latter follow during cyclical changes? To what extent do they occur within and between sectors, via the employment offices, drawing on people from the non-active population. Statistical information about flows on the labour market is also of considerable importance when assessing the effect of measures aimed at the labour market. After all, most employment and labour market measures primarily affect flows, since they are designed to encourage or hinder processes or flows.

This applies to wage subsidies, settling-in grants, allowances during induction periods, job creation measures, mobility allowances, and so on. Other measures are designed to bring about the opposite, namely, to prevent lay-offs (e. g. short-time working). There are also measures designed to bring about a temporary 'change in status' such as those cases where unemployed or employed persons are retrained for another job or are given further vocational training. It is not possible to estimate the potential effect of such measures or to assess their actual effect unless something is known about the flows or processes which would have occurred even if these measures had not been taken; such knowledge is essential if, for example, the scale of take-up by persons not in real need is to be gauged.

Particularly of late, the significance of data on flow has been repeatedly stressed both in Germany and abroad. In addition, efforts have begun in various places to remedy the serious lack of information in this area by means of special surveys. Generally speaking, the amount of information at present available on flows does not, of itself - because of differences in terms, definitions, survey methods, areas and periods covered, representativeness - provide a coherent and consistent overall picture which could serve as a basis for deciding policy. *It is the aim of the labour force account (LFA) to produce this consistency, that is, to combine the stock and flow data to form a plausible, comprehensive and detailed overall picture.*

2. THE DESIGN OF THE LFA

The LFA consists of a series of 'aggregates' or 'accounts', relating to a given date or period of time, which cover all the persons in the *same status category in regard to economic activity.* In principle, there is no limit to the number of these categories. The choice of category from among all those which are possible is determined by the problems being faced, that is, by the labour market situation and the means available for influencing the labour market or employment. Thus, *for the purposes of the LFA, flows are changes in the individual's employment status during a given period of time.*

In the broadest sense, flows are to be understood as meaning any changes in status, irrespective of:

(a) *the circumstances of the change* (e. g. whether voluntary, imposed, or for age reasons);

(b) the *frequency with which individuals change status* within the reference period, i. e. covering cases where an individual changes his status several times;

(c) *the durability of the change in status,* that is, whether the change is due to short-term frictional or seasonal flows or is a medium to long-term, or final, change in status.

In the version of the LFA so far worked out by the IAB (Institute for Labour Market and Job Research), the whole population of the Federal Republic of Germany has been divided into 10 status categories:

- children of pre-school age;
- school education;
- training in firms;
- persons in employment;
- registered unemployed;
- 'hidden' labour force;
- persons receiving further vocational training (under the German Work Promotion Act);
- persons unable to work;
- retired persons;
- other persons not in the active population.

Each year, the LFA shows the initial number of people in each of these categories, the numbers of all the persons coming from other 'accounts' or persons who have transferred to other 'accounts' and the total number at the end of the year. The whole account is also broken down by sex, occupational status and nationality (German or foreign). The account forms part of the population statistics which are gathered regularly. A diagram and a table are appended in the annex to illustrate the present structure of the IAB's labour force account.

All this is only a beginning. The design and content of the LFA both require improvements, although the LFA as it exists at present has definitely made it easier to follow events on the labour market. As regards its *design,* the main aspects of the LFA requiring further development are as follows:

The most important thing is to effect a *shift from 'cases' to 'persons',* that is, *to cease taking into account each occasion on which an individual changes status.* With the level of aggregation at present operating, this is particularly important in cases where individuals switch between employment and registered unemployment several times in one year. Research findings indicate that the number of persons affected by unemployment is about 25% less than the number of cases recorded in the unemployment register. However, in the present system, 'double counting' still occurs whenever individuals change between more than two status categories within a reference period, i. e. leave a job, register as an unemployed person, and then retire.

This type of 'double counting' can only be eliminated by collecting information on the stages gone through by individuals (see below).

The diagnostic value of the LFA is considerably increased if and in as much as it enables the duration of each change of status to be shown. The latter is to be interpreted in completely different ways, depending on the group of persons and type of change involved. Thus, at present, about 200 000 school-leavers come on to the unemployment register in Germany every year, but investigations into people leaving the register again show that the vast majority (90%) of those on the register remain unemployed for only a very short time (1-2 months). In such cases, therefore, unemployment is often only a short transitional phase and corresponds to the normal period required to find a job. However, there are other cases of short-term unemployment, especially when the latter is repeated several times, which are just as disturbing from the social point of view as long-term, continuous unemploy-

ment. It is therefore desirable to supplement the comprehensive description of all flows with additional, group or problem-orientated information of the kind described relating to persons who change status several times and to the durability of the changes.

Finally, there are *various types of data on flows*. On the one hand, they can describe – as in the LFA – all flows which occur between the various status categories within a specific period of time. On the other hand, they might be able to provide a statistical representation of reality by indicating *changes in the status of individuals or identical groups of individuals (cohorts)* during a reference period. The latter could, for example, show what was the status at the end of a particular year of all those persons who were in the same status category (e. g. persons in employment) at the beginning of that year. However, there are no qualitative differences between these two types of flow data. What they do is provide information on different types of facts which are of equal value in analysing developments on the labour market. (This cannot be examined more closely here but would be a useful topic for the oral discussion.)

If the overall picture of flows on the labour market is to be derived in this way from the stages gone through by individuals or by identical groups of individuals, the statistics as they are currently constituted would of course have to undergo a fundamental change (see Section 3).

3. DATA AT PRESENT AVAILABLE: REQUIREMENTS TO BE MET BY STATISTICS

The attempt to draw up a labour force account of the kind described reveals enormous gaps and distortions in the statistics kept in the Federal Republic of Germany. The data at present available are conspicuous by their abundance and, at the same time, their scarcity. In certain areas, there is information on stocks which is broken down unnecessarily and/or collected too frequently, while there are other areas where sufficient data of this kind are not available.

On the other hand, there are statistical 'emergency zones' such as that of data on flows. Thus far, the labour market statistics have yielded relatively little information of this kind. For example, the last survey showing inter-sectoral fluctuations dates back to 1965. (This is the sole reason why the 'persons in employment' account constitutes a single aggregate in the LFA used thus far, i. e. it has been impossible to include flows between the various branches of the economy.

Consequently, the 'soundness' of the statistical data which the IAB used to compile the LFA varies somewhat. Some of the data on flows (at the level of breakdown so far achieved) have a solid enough foundation, such as the general population totals, migration figures, data on persons coming into and leaving the education system and on persons who become unable to work.

As regards the most important part of the LFA, namely, that covering flows between the categories 'persons in employment', 'registered unemployed' 'hidden labour force' and 'persons not in the active population', the requisite flow data are not always available.

While flows between 'registered unemployed' and 'persons in employment' are still relatively well documented, it was necessary to forego showing gross flows (in favour of net variations) in the sections dealing with the relationships between, on the one hand, the 'hidden labour force' account and the other accounts covering the potential labour force

('persons in employment' and 'registered unemployed') and, on the other, the account 'other persons not in the active population'. In this respect, the LFA can at present serve only as a general model.

In other areas, only very 'limited' information, i. e. information relating to a single point in time or a single period, is available. In these cases, it was necessary to make assumption about developments during the years preceding and following the point of time or period in question. In any case, precise figures are less important initially than orders of magnitude, ratios and trends. Despite all the gaps in the statistics, it is still possible to combine the available data in such a way as to produce an overall picture which gives a fair representation of reality.

In addition, merely by combining available fragments from various statistics, it is often possible to help close or at least reduce gaps. To a certain extent, the detailed information available considerably reduces the limits within which the statistically undocumented flows take place.

Consequently, for the purposes of a labour force account, it is urgently necessary to rethink every aspect of the programme of statistical surveys. This applies not only to the Federal Republic of Germany. In other countries, where similar research projects are becoming more and more common, the available data are in a comparable state and are also subjected to the same type of criticism. International initiatives to bring about improvements in the statistical recording of flows on the labour market can therefore only be welcomed, especially as they can counteract the prevailing trend towards a general reduction in statistical survey programmes, which is dictated by economic considerations and in most cases overlooks practical arguments for such programmes.

On balance, no increase in expenditure need be involved if the programmes are changed. It will be essential to increase the quantity and quality of statistical data on the stages people have gone through and their destinations (longitudinal surveys). The Statistical Office of the European Communities has taken an important step forward in this field by gathering retrospective data on working life. This approach can and should be followed up.

4. THE FUTURE

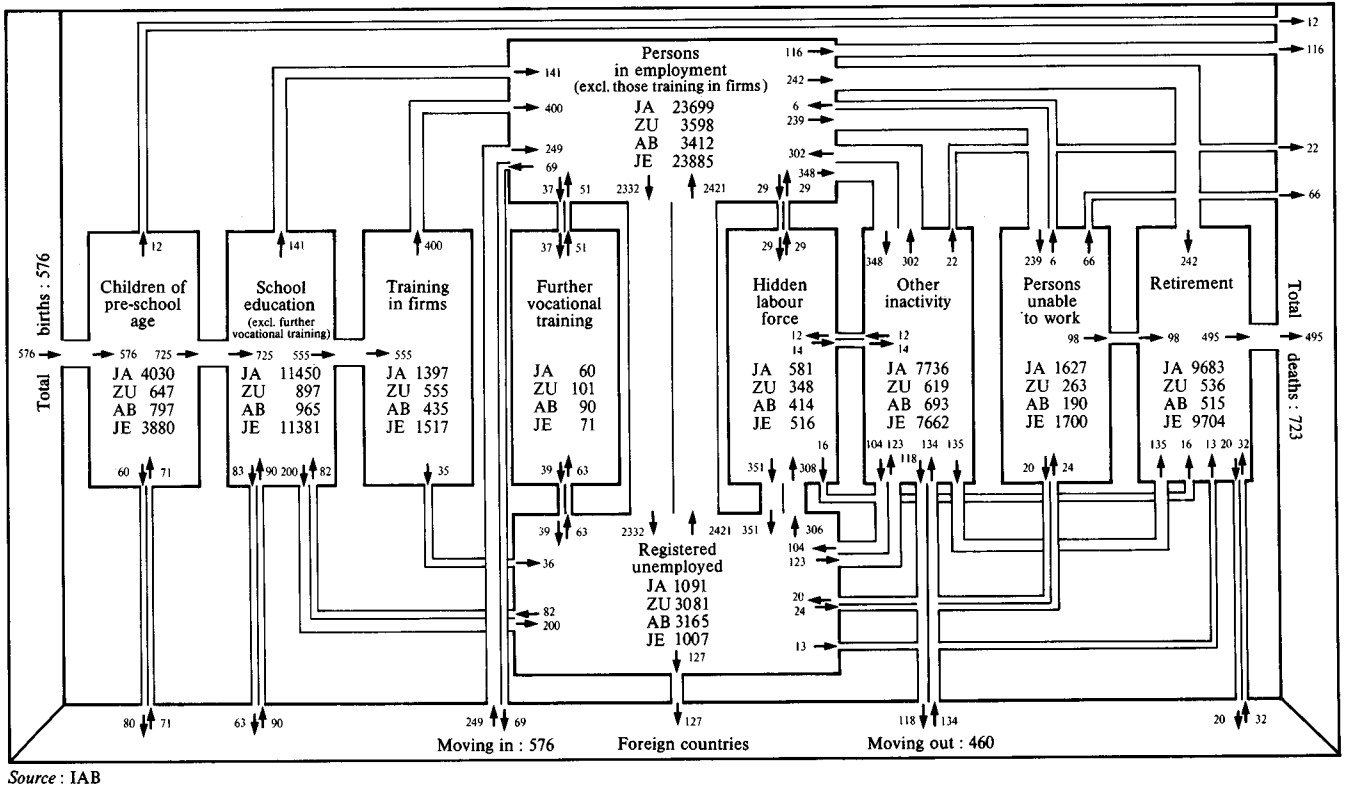
The most important thing to be done next is to consolidate and improve the statistical part of the LFA by processing further data, particularly those taken from statistics drawn up by the Bundesanstalt für Arbeit (Federal German Labour Office). It is also planned to extend the time series back to 1960 so as to create a broader basis for the detailed analysis. It is only then that a further breakdown can be envisaged. In particular, the 'persons in employment' account will have to contain a sectoral breakdown.

It is only when improved data of this kind are available that it will be possible to begin a detailed structural, time series and component analysis and to use the LFA to examine problems of the kind described above. As regards the methodology of the LFA, the long-term aim is to transform the latter into a formal model which will enable, *inter alia,* the probabilities of changes of status in specific groups to be calculated independently of time or the labour market situation. To this end, there is relevant preliminary work carried out in the

USA and the UK which can be referred to. Finally, the aim is to supplement the LFA with an appropriate *job* account so as to produce a comprehensive labour *market* account which will give much more insight into events on the labour market.

Table 1 - Labour force account 1978

Stocks and flows (men and women in thousands)



Source : IAB

JA Beginning of the year
ZU Entries
AB Leavers
JE End of the year

LABOUR FORCE ACCOUNT (LFA) (FEDERAL REPUBLIC OF GERMANY)

Potential of labour force (stocks, entrants and leavers)

Men and women, Germans and non-Germans

(in thousands)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Stock beginning of year	26 641.3	26 875.7	26 973.7	27 082.4	27 165.6	26 953.3	26 819.6	26 742.7	26 788.1	26 934.6	27 203.1
+ from school education	668.8	668.6	732.9	721.8	799.2	794.4	832.8	928.0	970.3	963.1	860.4
+ from further voc. training	56.3	94.6	120.4	122.7	133.4	172.2	137.3	93.9	91.8	107.4	132.5
+ from inability to work	19.8	19.5	19.4	21.3	22.4	20.5	22.7	24.1	26.8	27.4	28.7
+ from retirement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ from other inactivity	367.7	492.0	526.2	515.9	505.7	514.3	428.5	361.8	377.6	369.0	632.4
+ from non-active	1 112.6	1 274.3	1 398.9	1 381.8	1 460.8	1 501.4	1 421.4	1 407.9	1 466.5	1 467.0	1 654.0
+ from moving in	775.9	656.5	551.9	593.1	259.6	180.0	204.0	227.0	248.3	297.2	355.0
Total entrants	1 888.5	1 931.1	1 950.8	1 974.9	1 720.4	1 681.4	1 625.4	1 634.9	1 715.1	1 764.2	2 009.0
Total leavers	1 654.2	1 833.0	1 842.1	1 891.7	1 932.7	1 815.2	1 702.3	1 589.5	1 518.6	1 545.7	1 658.8
- to school education	37.3	40.7	44.5	44.5	56.3	79.3	89.6	87.4	81.9	77.1	70.6
- to further voc. training	74.8	130.1	131.2	128.6	148.0	173.9	82.9	78.1	100.6	118.1	147.8
- to inability to work	238.6	260.9	261.8	238.8	265.7	267.2	259.2	264.8	265.4	274.5	319.4
- to retirement	263.0	277.3	271.4	324.9	355.3	314.1	346.3	253.4	236.9	238.1	228.9
- to other inactivity	500.8	571.1	593.5	635.3	574.8	480.3	516.4	559.0	518.5	542.6	571.0
- to inactive population	1 114.6	1 280.0	1 302.4	1 372.1	1 400.0	1 314.9	1 294.5	1 242.7	1 203.3	1 250.5	1 337.7
Death	169.5	161.8	156.8	151.4	144.3	139.4	130.0	121.9	119.6	114.7	116.3
Moving out	370.1	391.3	383.0	368.2	388.3	360.8	277.8	225.0	195.7	180.5	204.9
Stock end of year	26 875.7	26 973.7	27 082.4	27 165.6	26 953.3	26 819.6	26 742.7	26 788.1	26 934.6	27 203.1	27 553.3

Source: IAB

BIBLIOGRAPHY

BLOSS, H., 'Abgänge sozialversicherungspflichtig beschäftigter Arbeitnehmer nach Wirtschaftszweigen bis 1985 und 1990', in: *MittAB 4/1979.*

BRINKMANN, Ch., K. SCHOBER-GOTTWALD, 'Zur beruflichen Wiedereingliederung von Arbeitslosen während der Rezession 1974/75 - Methoden und erste Ergebnisse', in: *MittAB 1/1976.*

BRINKMANN, Ch., 'Arbeitslosigkeit und Mobilität', in: *MittAB 2/1977.*

BRINKMANN, Ch., 'Strukturen und Determinanten der beruflichen Wiedereingliederung von Langfristarbeitslosen', in: *MittAB 2/1978.*

DAVID, M., T. OTSUKI, 'Forecasting Short-Run Variation in Labor Market Activity', in: *The Review of Economics and Statistics, 1968.*

EGLE, F., R. LEUPOLDT, 'Mehrfacharbeitslosigkeit, Dauer der Arbeitslosigkeit und Wiedereingliederung von Arbeitslosen. Eine empirische Untersuchung aus einer Abgangsstichprobe', in: *MittAB 4/1977.*

EGLE, F., W. KARR, R. LEUPOLDT, 'Strukturmerkmale der Arbeitslosen für Zu-und Abgänge und Analyse der Vermittlungstätigkeit', in: *MittAB 1/1980.*

FIELDS, G. S., 'Labor Force Migration, Unemployment and Job Turnover', in: *The Review of Economics and Statistics, Nov. 1976.*

GERFIN, H., 'Einige neuere Entwicklungen und Perspektiven der Arbeitsmarkttheorie', in: *Zeitschrift für die gesamte Staatswissenschaft, Vol. 134/1978.*

HOFBAUER, H., H. KRAFT, 'Materialien zur Statusmobilität bei männlichen Erwerbspersonen in der Bundesrepublik Deutschland', in: *MittAB 3/1972.*

HOFBAUER, H., 'Die Untersuchung des IAB über Berufsverläufe bei Frauen. Bericht über Methoden und erste Ergebnisse', in: *MittAB 2/1978.*

HOFBAUER, H., 'Statusmobilität in den 70er Jahren', in: *MittAB 4/1980.*

HOLT, Ch. C., C. D. MacRAE, St. O. SCHWEITZER, R. E. SMITH, 'Manpower Proposals for Phase III', in: *Brookings Papers on Economic Activity, 3/1971.*

KOHLER, H., L. REYHER, 'Erwerbstätigkeitsphasen der Frauen', in: *MittAB 3/1970.*

LINDLEY, R. M., *Economic Change and Employment Policy,* 1980, London.

LINDLEY, R. M., *A Population Accounting Framework for Labour Market Analysis,* OECD 1980, MAS/WP 7 (80) 4.

SATERDAG, H., H. STEGMANN, 'Jugendliche beim Übergang vom Bildungs- in das Beschäftigungssystem (1980)', in: *BeitrAB 41 (1980).*

VICKERY, C., 'The Impact of Turnover on Group Unemployment Rates', in: *The Review of Economics and Statistics, Nov. 1977.*

2.3. Volume and duration of work

- Methodology of calculating the volume of work of employees

(W. P. LEUNIS, C. G. VERHAGE, Centraal Bureau voor de Statistiek) [1]

In this paper a methodology has been developed which can be used to calculate the volume of labour of employees measured in hours.

We have taken as a starting point that Community statistics and harmonized statistics should serve as the basis for the data.[2] The method described is solely used to calculate the volume of labour of employees, partly because a completely different methodology would have to be drawn up for self-employed persons and family workers.

Essential to the method described is that relatable information be available on the working population and the volume of labour. The volume of labour should also be interrelatable with data from the national accounts concerning production and total of payroll. Seen in this context information must be used which is derived from surveys of persons as well as enterprises. This is described in Section 1. Section 2 deals with the definitions of volume of labour given by international organizations. We have adopted the OECD definitions, i. e. the average number of employed persons multiplied by the number of hours worked by these persons during the period of account. In Section 3 this has been translated to the number of jobs and the number of hours of these jobs. Before elaborating on the methodology the types of hours of work is described in Section 4. In the definition which is used individual attention must be paid to the three different types described. The essential part of this paper namely the methodology, is elaborated in Section 5. In conclusion, in Section 6 suggestions are made for adapting the harmonized and Community surveys for the purposes of calculating the volume of labour. In connection with the changes to be made, it was not possible at this stage to adapt the methodology as presented here.

1. AN INTEGRATED SYSTEM OF INFORMATION

1.1. The development of a coherent system of labour statistics deserves more attention that it has hitherto received. Too often the various types of statistics on labour and earnings develop independently of one another. When using different statistics, however, one tries to relate them to one another as much as possible. In policy formation, economic models comparing labour supply and demand play an important part. The volume of labour has a particularly significant role in this area since it is a derived statistic linked with both labour and earnings statistics.

For the calculation for the volume of labour there are some obstacles, for which a solution must be found, namely:

---

[1] The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Netherlands Central Bureau of Statistics. Ideas developed by J. BERKMAN and C. G. VERHAGE in 'obstakles op de weg naar een stelsel van arbeidsstatistieken', included in *CBS, Select 1, 1980* (Staatssuitgeverij, The Hague), have been used extensively.

[2] The surveys are identified by the terminology used in the European Community. See footnote 1 to the table in Section 6.7.

(i) the information concerning the volume of labour must be interrelatable with data from the national accounts (e. g. production) as well as data about the working population;
(ii) two kinds of sources are used for the calculation, i. e. surveys of persons and of enterprises which in practice do not provide us with exactly the same results.

1.2. About the first obstacle the following is to be noticed:
The data used in the system of national accounts are volume quantities, while the labour statistics provide information about the number of persons or jobs on a specific date.

These two categories of statistics are related to each other by adding a time factor to data on persons and jobs. For example, one could think of a year, a month, a week, a day or an hour. The data of the national accounts are data on a yearly basis.

It will not be enough to establish the amount of labour on a yearly basis, because a year of labour, as measured, can be subject to change in the future. The same can be said for the time factor month, week, or day. The only variable which can suffice as a basis is the hour. The link between information on working persons and jobs on the one hand and volume on the other hand can thus be found in the amount of hours of work per employee or job.

One further point must be made about the volume of labour. Measured in hours of work only the *quantity* of the volume of labour is given. For measuring the *quality* earnings must be used as the indicator as long as there is no better measure available. When corrected for price changes the development of the sum of all earnings should reflect the change in the quality of the volume of labour. This is not examined in any more detail in the following pages.

1.3. The second obstacle, namely two different kinds of sources, is more difficult to overcome. Sometimes there are great differences between the results of surveys of persons and those of enterprises covering the same subject. This may be caused by differences in the basic design of the surveys.

The effects of the differences can be partially quantified, e. g. the field which is surveyed. However, some differences cannot be quantified, which can result in problems for the user of the statistics.

A solution is to establish which of the two surveys (of persons or enterprises) yields the most exact information. In this way a broad system of statistics concerning labour with a nucleus of consistent information is developed.

For example: for the classification of employees by economic activity information can be used from both surveys; of persons as well as enterprises. In this case preference should be given to the surveys of enterprises, the more so because data concerning production and wages are also collected from the same source.

However, the best source of a specification by level of education is the survey of persons. Information about level of education of the employed persons is often not recorded by enterprises.

This results in an eclectical method (selective combination of statistics), which means a nucleus within the whole of statistical information regarding labour.

The essence is that the nucleus consists of coherent statistics. This method is described in Section 5.

The abovementioned eclectical method has been, and still is, being used in the system of national accounts.

2. INTERNATIONAL SUGGESTIONS AND GUIDELINES

2.1. In this section attention is paid to guidelines and suggestions of the United Nations, the Commission of the European Communities and the Organization for Economic Cooperation and Development.

The system of national accounts (SNA) of the United Nations [1] and the European system of integrated economic accounts (ESA) [2] of the European Communities deal with the average number of persons employed (occupied population) as well as the number of hours worked during the period of account.

Paragraph 8.48 of SNA states that 'all persons engaged in the production of the gross output of a given country should be included in data on her employment . . . the average number of persons employed during a period of account should at least be derived from figures of employment during each month of the period'. It is also said that the number of man-hours worked during the period of account is a much more exact measure of the quantum of labour. This is probably only feasible in respect to employees.

The ESA defines the occupied population (see paragraph 808 and following of the ESA) as: 'all persons engaged in some productive activity'. Furthermore, 'As the aggregates to which the figures for occupied population are related are annual totals, mean occupied population over the course of the year should be used'.

In case of a single annual enquiry some allowance should be made for the fact that certain people do not work throughout the whole year. Persons who are employed on a part-time basis during a whole year are counted as one occupied person.

For the definition of 'hours worked' the ESA refers to the International Labour Office, which is concerned with the number of hours worked during a year to obtain a certain output.

In the SNA and ESA tables which show data regarding the number of hours worked are limited to employees.

2.2. The difference in approach of the ESA and the SNA is that the SNA emphasizes the hour as a measure for the quantity of labour. The OECD is of the same opinion. In the OECD paper MAS/WP 7(81)2 it is said that: 'Numerous studies (including several by the OECD) have stressed the need for conducting analyses of labour productivity in terms of real product *per man-hour* . . .'.

The SNA and the ESA do not relate the mean occupied population and the number of hours worked with each other. However, in the OECD paper (see paragraph 16 of the paper) both

---

[1] United Nations, 1968, *A system of national accounts.*

[2] Eurostat, 1979, *European system of integrated economic accounts, second edition.*

data have been related to each other indeed. In the OECD paper the total input of labour per year (sometimes referred to as the annual volume of labour) is *the number of hours actually worked per person per year in combination with data of the average number of persons.*

In mentioning both components (persons and time occupied) we have returned to that which has been said in paragraph 1.2.

3. JOBS VERSUS PERSONS

From surveys of persons the number of working persons and the number of hours worked can be determined. The collection of data by means of surveys of enterprises will strictly supply the number of jobs.

In this manner a job is defined as a series of tasks carried out by one person in one enterprise, irrespective of the duration of the tasks. If the number of persons working in an enterprise is known, then the number of jobs in that enterprise is also known.

The number of persons (resulting from surveys of persons) and the number of jobs (surveys of enterprises) are not identical. One person can be employed in more than one enterprise. A job, however, can be coupled to one enterprise.

The choice between jobs or persons as a starting point for the volume of labour had to be made because it should be possible to divide the volume of labour by economic activities.

It is possible that a person occupies two jobs, registered under two different economic activities. One job, on the other hand, is always connected to one economic activity.

This means that the abovementioned choice turns out in favour of jobs. Therefore, in defining the volume of labour, consideration is given to jobs and to the number of hours actually worked on each job.

This distinction between jobs and persons is important if the fact that one person more than one job will affect figures. If this happens occasionally, then in view of the margin of uncertainty, the volume of labour can be assessed by means of the number of working persons instead of the number of jobs.

For the purposes of macroeconomic policy the link between persons and volume of labour must be borne in mind. One must be able to recognize the effect on the number of jobs and employed persons of actions taken to stimulate employment. Conversely, it will be of importance to establish the influence of a policy directed towards persons (e. g. policies to stimulate the participation rate) or to jobs (work-sharing policy) on the total employment.

4. TYPES OF HOURS OF WORK

4.1. The preceding guidelines and suggestions of international organizations are based on hours actually worked. In developing a system for calculating the volume of labour it is essential to pay attention to:

(i) hours agreed upon in labour contracts;
(ii) hours actually worked;
(iii) hours paid.

4.2. Barring special circumstances the number of hours agreed upon according to the labour contract defines the quantum of labour available to the employer. In principle, productivity analyses are possible when the relation between 'contractual labour' and production is considered. Furthermore, if information is available about overtime, sickness, strikes, short time, etc., it is possible to determine the effect of these categories on the development of labour productivity.

The number of hours agreed upon in labour contracts can moreover also be an indication of the welfare level, which is influenced not only by income, but also by the number of hours specified in the labour contracts.

4.3. The importance of data concerning the hours actually worked need not be emphasized. The data can be directly related to the domestic product as defined in the national accounts.

4.4. In the context of the national accounts it may be interesting to study the relation between the quantum of paid hours and the compensation of employees (all payments in cash and in kind made by employers in remuneration for the work done by their employees during the relevant period).[1] The changes in the sum of these compensations can be attributed to:

(i) a change in the quantity of hours paid;
(ii) a change in the quality of labour;
(iii) a change in the wage rate.

For an insight into this matter it is necessary to know the quantity of hours paid, mentioned under (i) above.

5. PROCEDURE FOR CALCULATING THE VOLUME OF LABOUR

5.1. This section describes how the volume of labour can be calculated on the basis of statistics (harmonized as well as Community surveys) agreed upon in the EEC. Inevitably changes will be desired in these statistics. This will be explained in Section 6.

In the following paragraphs these changes are assumed to have been made already.

5.2. In order to calculate the volume of labour two different ways can be clearly distinguished. The first results in the mean number of occupied jobs per economic activity, per year. The other way leads to a mean for the hours of work (expressed as paid, actually worked, as well as contractual hours) per job, also per year and per economic activity.

The results of both ways must be multiplied with each other in order to obtain the desired volume of labour statistics in hours.

The procedures followed in both ways are summarized step by step in the diagram on page 17. In the following these steps will be further explained wherever necessary. The numbers placed in square brackets refer to corresponding numbers in the outline. Numbers preceded by S refer to sources to be used, numbers preceded by D refer to derived results.

[1] See ESA paragraph 406.

5.3. We shall begin with the calculation of the mean number of occupied jobs. The labour force sample surveys and the harmonized statistics of employees can be seen as important cornerstones. The period of reference for both surveys is the end of March/beginning of April.

In order to make a connection with the population statistics [S. 1] the population on 31 March [D. 1] is used as a basis.

The labour force sample surveys [S. 2] provide us with the participation rate of employees in the total population.

When this participation rate is applied to the total population on 31 March [D. 1] we get the labour force excluding self-employed persons and family workers on 31 March [D. 2].

If the results of the labour force sample surveys are not yet available or if these surveys are not held in the corresponding year then the participation rate must be calculated by intrapolation or extrapolation.

In the Netherlands education statistics and statistics on disabled workers are used for this purpose, as very reliable recent figures are available for these two categories. When assessing the labour force by inter- and extrapolation of participation rates, the calculation is based on the population excluding the two categories mentioned. This intermediate step is not essential. If the information is not available, the labour force is calculated by means of the participation rates for the whole population [D. 3].

On the basis of the percentage of the unemployed found in the labour force sample surveys [S. 2] and the registered unemployment statistics [S. 3] it is possible to split off the working labour force (according to national concept) [D. 6] from the total labour force [D. 3]. The transition to the labour force according to domestic concept [A. 7] is achieved by making corrections for frontier workers [S. 4].

As persons can hold more than one job at the same time it is necessary to use the ratio persons - occupied jobs from the labour force sample surveys [S. 2] in order to obtain the number of occupied jobs on 31 March [D. 8] out of the working labour force [LS.7] according to domestic concept.

This is an essential part of the calculation, i. e. the link with the figures on the labour force. It represents a conscious decision to link the figures on the labour force and the volume of labour.

By using harmonized quarterly statistics of employees [S. 5] a conversion to a yearly mean can be made. These statistics give the ratio of the mean number of occupied jobs per year to the number of occupied jobs on 31 March [D. 9].

The resulting mean number of occupied jobs per year [D. 10] will afterwards be differentiated by economic activities with the help of the last mentioned statistics [S. 5]. These give the different economic activities as a proportion of the there - found mean number of occupied jobs [D. 11].

Differentiation by economic activity is therefore based on the economic activities as established for enterprises.

By using the same register of enterprises for production statistics and wage statistics we obtain a connection with data such as production and total of payroll.

The terminal point of the first method described above has now been reached [D. 12].

Obviously no attempt will be made to cover the black economy. It is assumed that production data which determine the content of the volume of labour, do not contain additional assessments to include the black economy.

5.4. The second method is concerned with figures on hours of work, obtained from wage statistics. Details are contained in Section 1.3 on the eclectical method.

The harmonized statistics on earnings and the survey of the earnings of workers employed in agriculture [S. 6] give the contractual hours of work per economic activity per week in April and October [D. 13]. The labour cost statistics taken every three years and the EEC farm structure surveys taken every four or five years [S. 7] give the mean contractual weekly hours of work for one year per economic activity. By assuming that the ratio between the contractual weekly hours of work in April/October and the yearly mean number of contractual weekly hours of work [D. 14] is rather stable it is possible to convert the hours of work data derived from the harmonized statistics on earnings to a yearly mean. The same procedure can be applied to the survey of the earnings of workers employed in agriculture.

Multiplying the result by the number of weeks in one year and subtracting the mean holiday and leave converted to hours [S. 10] leads then to the mean contractual hours of work per economic activity per year [D. 15]. Taking the contractual yearly hours of work as a basis, conversions are possible to actually worked and paid hours of work. For this purpose it is desirable to use yearly surveys [S. 11] featuring overtime, sick-leave, short time and the like. These statistics are not harmonized within the EEC. When these data are lacking, the only remaining possibility is to use the labour cost surveys and the EEC farm structure surveys. However, the disadvantage of these sources is that the abovementioned data may fluctuate from year to year.

To arrive at the mean actually worked hours of work [D. 16] the contractual hours of work will be increased by overtime and decreased by sick leave, short-time and other (paid as well as unpaid) leave. Hours of work expressed as paid hours of work [D. 17] are less clear to determine.

In order to be able to indicate the items with which the contractual hours of work have to be decreased or increased first, it is necessary to establish a standard of the extent to which sick-leave, etc. were paid or unpaid.

5.5. The data on paid, contractual and actually worked hours of work per year and per economic activity, obtained according to the above described second way, lead after multiplying them by the first phase calculated mean number of occupied jobs per economic activity per year to the desired ultimate object: a volume of labour per year per economic activity in the shape of paid [D. 18], contractual [D. 19] as well as actually worked hours [D. 20].

6. THE USE OF HARMONIZED STATISTICS AND COMMUNITY SURVEYS

6.1. As shown in Section 5 the methodological design for calculating the volume of labour has been considerably supported by harmonized statistics and Community surveys.

In the following paragraphs we will take a further look at these surveys in connection with their usefulness for the design described in Section 5. For each survey we will mention the desired adaptations and those of them that have already been realized in the Netherlands.

In the outline on page 15 we have listed all desired adjustments per survey.

6.2. The Community surveys of importance for the calculation of the volume of labour are the labour force sample survey, the labour cost statistics and the farm structure surveys. Besides, use is made of the harmonized statistics of employees and the harmonized statistics of offered hours of work as a part of the harmonized statistics on earnings. The survey of the earnings of manual workers employed in agriculture will be connected to the last mentioned statistics. Not taken into consideration are the statistics only important for the calculation of the working labour force, namely the population statistics, educational statistics, statistics on disabled workers, registered unemployment statistics and the frontier workers statistics.

6.3. In the present situation most of the data required from the labour force sample surveys are available. The only but surely important factor which does not follow conclusively from the present survey is the mean number of jobs per person. At the moment the Netherlands only ask for the main activity whereas in the EEC an additional (optional) question asks for the second main activity. In connection with the above described design it is important to extend this question in such a way that the exact number of jobs per person (as an employee) is known.

6.4. Once every year the harmonized statistics of employees (in fact it pertains to the number of jobs) give data for all major groups of industry, as listed in the general industrial classification of economic activities within the European Communities (NACE).

In addition, within the context of the European Community surveying covers, on a quarterly basis, the number of jobs in all branches of industry relating to the activities listed in divisions 1-4 [1] and division 5 [2] of the NACE.

Also here the minimum requirement should be data on enterprises employing 20 or more persons.

It is desirable to extend these two last mentioned statistics to harmonized statistics of employees on a quarterly basis, covering all activities, all enterprises and all jobs.

6.5. The filling in of the harmonized statistics on earnings shows considerable differences within the EEC. The hours of work data supplied by each EEC member country to the SOEC relate to paid hours of work for manual, full-time workers covering the activities as listed in divisions 1-5 of the general industrial classification of economic activities within the Euro-

[1] Council Directive No 72/211/EEC of 30 May 1972 concerning coordinated statistics on the business cycle in industry and handicrafts.

[2] Council Directive No 78/166/EEC of 13 February 1978 concerning coordinated statistics on the business cycle in building and civil engineering.

pean Communities (NACE), and from these at least the enterprises employing 10 or more persons.

Besides, the survey of the earnings of workers employed in agriculture also supplies data on paid hours of work. These data relate to permanent, manual and full-time workers.

The Dutch completion of the harmonized statistics on earnings also gives the contractual hours of work, covering the divisions 1-9 of the NACE and from these all enterprises and all employees (manual, non-manual, full-time and part-time).

The contractual hours of work in the Netherlands can also be derived from the survey into the earnings of workers employed in agriculture (twice a year). These data concern male manual workers (permanent as well as non-permanent) in agriculture. Female employees are covered by the survey, but they form such a small group that the results are not reliable.

6.6. Lastly we will consider the labour cost statistics and the EEC farm structure surveys. The report of the working group 'Wage statistics' delivered 19/20 March 1980 (Eurostat/C2/80206) shows that all countries do have the possibility of providing data concerning the contractual hours of work for employees.

These data cover all enterprises employing 10 or more persons with the activities as listed in the divisions 1, 2, 3, 4 and 5 and the major groups of industry 61, 64/65, 81 and 82 of the general industrial classification of economic activities within the European Communities (NACE).

In the framework of the calculation of the volume of labour within the given methodology it is desirable to extend the labour cost statistics to all enterprises and all activities as listed in the divisions 1-9 of the NACE. With regard to the agricultural sector the farm structure survey gives an approximation of the actually worked hours of work. It is desirable to ask the contractual hours of work in this survey as well.

6.7. In order to go from the contractual hours of work to actually worked or paid hours of work some additional data are required which may vary strongly from year to year.

Examples are, for example, sick leave and hold-ups owing to frost and strikes. In view of the yearly fluctuations in these data it is preferable to obtain them from yearly sources and not from the labour cost statistics and the farm structure surveys.

It is desirable to develop European Community activities so that this information may be obtained from yearly surveys.

However, when one or more of these yearly sources are lacking the last mentioned sources will have to be used. Therefore, it is desirable to ask in the labour cost survey and farm structure survey for details of overtime and the number of hours lost as a result of, *inter alia,* short-time working and illness, per year. It is also useful to have this information for the analysis of labour costs. In the Netherlands this information is partially included in the labour costs survey.

---

[1] Formerly a survey on the earnings of permanent employees only, see Council Regulation 3112/80 EEC of 27 November 1980. This article, however, is based on the draft directive submitted to the Member States in July 1981 which will also include seasonal workers.

SCHEME: DESIRED ADJUSTMENTS [1]

Source	Proposed adaptations	Adjustments made in the Netherlands
1. Labour force sample survey	(a) Number of jobs (as an employee)	no
2. Harmonized statistics of employees	(a) Integration with sources 3 and 4	under way
3. Coordinated statistics on the business cycle in industry and handicrafts	(a) Extend to enterprises employing less than 20 persons	yes
	(b) Extend to the sectors covering all activities as listed in the NACE (Integration with sources 2 and 4)	under way
4. Coordinated statistics on the business cycle in building and civil engineering	(a) Extend to enterprises employing less than 20 persons	no
	(b) Extend to the sectors covering all activities as listed in the NACE (Integration with sources 2 and 3)	under way
5. Harmonized statistics on earnings	(a) (Also) asking the contractual hours of work	yes
	(b) Extend to the sectors covering the activities as listed in divisions 1-9 of the NACE	yes
	(c) Extend to all employees	yes
6. Survey of the earnings of manual workers employed in agriculture	(a) (Also) asking the contractual hours of work	yes
	(b) Twice a year	yes

[1] The terminology used for EEC statistics is somewhat different from that used in the Netherlands. The titles of the statistics involved are given below. The numbers refer to the sources in the above table.
1. Labour force survey
2. Statistics on employed persons
3. General industrial statistics
4. Statistics on the building industry
5. Half-yearly survey of earnings
6. Statistics on earnings in agriculture and horticulture
7. Labour costs survey
8. Structural census on agriculture.

Source	Proposed adaptations	Adjustments made in the Netherlands
7. Labour cost statistics	(a) Extend to the sectors covering the activities as listed in divisions 1-9 of the NACE	no
	(b) Extend to enterprises employing less than 10 persons	no
8. Farm structure survey	(a) (Also) asking the contractual hours of work	no
9. Statistics on overtime and hours lost	(a) Asking overtime and hours lost as a result of, *inter alia,* illness per year.	partially

6.8 The foregoing shows that the Community surveys and harmonized statistics provide an adequate basis for calculating the volume of labour, provided that the necessary adaptations in these surveys can be carried through. However, concerning this presumption we will, in view of the far reaching changes in some of the surveys, have to realize that in practice a few changes will not be easy to make. Nevertheless the construction of a coherent system of labour statistics will have to be based on the most ambitious intentions.

2.4. Volume and duration of work

- Present availability and future improvements needed in statsistics from labour force surveys

(J. ZIGHERA, University Paris-Nanterre)

The comments which follow deal only with the labour force sample survey. This stems, not from any desire to neglect other sources, but from the fact, firstly, that the author has mainly had experience of the sample survey and, secondly, that this survey is the only one - in the majority of countries - which permits data on hours of work to be cross-tabulated with data on age and family situation; although other sources refer to the nature of working activities, it seems that the greatest guarantees with regard to the nomenclature used are to be found in the labour force sample survey (which should be extended to the level of a two-figure nomenclature for working activity and should also concern itself with occupations).

The main reason for emphasizing the possibilities afforded by cross-tabulating data is that evidence from various projects under way shows that some of the averages determined for whole groups are of little significance. Thus, in many countries, the number of hours worked by women is, relatively speaking, not very different from those worked by men in the

younger age groups, but the difference becomes considerable above the age of 30 or 35. In addition, hours of work for women in a given activity frequently cover two or more sub-populations with widely varying working hours.[1]

An attempt will be made in the following pages to assess whether the information provided by the labour force sample survey meets the purpose for which it was created, to describe hours of work and relevant trends. Trends in hours of work must be described in frameworks which can be used as a basis for negotiations between employers and employees or for the definition of common policies. As time has gone by, it has become more and more apparent that reference to the week and the very idea of a working week are no longer appropriate, because - when making comparisons of production, productivity, amount worked, work organization, etc. - reference is being made increasingly to the year and in some cases, such as in considering retirement schemes, to the whole working life of an individual. Therefore, the first topic for consideration must be the way in which one measures annual hours of work.

It is known that hours of work must be measured, but is it possible to be certain that the survey procedures permit such measurements to be made? Leaving aside altogether problems connected with sample sizes, it is obvious that even with reasonably high sampling rates, the number of hours worked by certain small groups cannot be measured in a reliable fashion. What we are concerned with is groups which are sufficiently large for measurement to be meaningful, and we must ask ourselves whether the questions used for the survey and the procedures it employs are liable to introduce a systematic bias with respect to given countries, occupational groups, sexes, age-groups etc, which could call into question the quality of the conclusions which can be drawn. The second topic for consideration, therefore, is how hours of work can be measured reliably.

Two successive sections will therefore be devoted to a more thorough analysis of these two topics, beginning with the second one. Next, the information which can be drawn from the survey will be indicated, and finally the last part will evoke proposals for changes which seem desirable, in as much as they relate to both topics, for the improvement of the sample survey.

1. RELIABLE MEASUREMENT OF HOURS OF WORK

1.1. Leaving aside for the moment the reference period - although it will be seen that the two problems are linked - does the survey measure hours of work?

Firstly, hours of work as a concept is not defined anywhere; it may therefore vary from country to country according to sector of activity and occupational status. To take some examples:

(i) Are hours of work calculated door to door, just as the time actually spent at the workstation?
(ii) Are breaks (rest periods, etc.) included?

[1] The following general observation is implicit in this comment: when dealing with a topic such as hours of work, the different populations studied are likely to be highly heterogeneous; for this reason, whenever possible, it is always better to study distributions as well as averages.

1.2. In some cases, there is an 'official' or conventional reference in the form of the figures for working hours given on pay slips; in such cases, it is quite probable that this information will be copied when the survey is conducted. If, on the other hand, the amount of time spent working is established over a longer period, such as the month (whether weekly working hours are constant or not), the use of these figures is much less likely to be automatic. As a more general point, it has been noted that in all the countries preference is given to numbers ending in the figures 0, 2, 5 and 8; this does not seem to correspond to anything concrete but denotes a preference for rounding up to these numbers; it is worth pointing out that one of the consequences is that any changes in working hours must amount to two or three hours to entail a change in the declaration.

1.3. Finally, current practice means that information on hours of work may be provided by a person other than the party concerned, who happens to be providing answers on behalf of the entire household. Up to now there has been no way of checking the extent to which this happens. This can give rise to distortions, including confusion between the time the person is absent from home and the time he spends actually at work; in addition, these distortions may vary depending on whether the household is small or large or whether the spouse works or not.

Fortunately, an analysis of these distortions should, in principle, be possible when the 1981 survey is held, as from this time on the identity of the respondent should be recorded.

1.4. With respect to these different points (see Section 3 for further details), it would seem that the best way to ascertain the accuracy of the replies concerning hours of work would be to conduct a complementary survey with a more detailed breakdown of time spent at work or connected with work, which would refer not to the week preceding the survey but probably to the day on which it was held. But this is linked to the more general problem which we have already encountered when replies are given by third parties.

2. MEASUREMENT OF ANNUAL HOURS OF WORK

2.1. As is well known, 'hours of work' mean those worked in the week preceding the survey. Some countries conduct similar surveys which refer to another six-monthly period or to other three-monthly periods, but there is no survey anywhere which really permits the measurement of trends in hours of work over the whole year. Annual hours of work can really be measured only by a continuous sampling survey. Such a survey would be feasible, as they already exist in various countries which are not Community Member States.

2.2. If a survey is confined to one or several weeks, extrapolation cannot be avoided, and this is what happens in the Community. One can either take as a basis only those people who have worked 'normal' working hours and find out the number of 'normal' equivalent weeks for the whole country, or for groups outside the country, or one can also take into account the reasons for abnormal working hours (including theoretically, absences) and then analyse seasonal variations for illnesses, holidays, etc...

This has to be done in order to find out the coefficients by which the numbers recorded in the reference period have to be multiplied. These various approaches are commonly used at the moment, but there is no escaping the fact that they rest on a series of hypotheses which

cannot be checked in the context of the survey and which are generally hard to cross-check with other sources, because the coverage is not so complete (in particular, small firms are not taken into consideration).

3. USES OF THE SURVEY

3.1. At this stage in the argument, negative observations have accumulated, but does this mean to say that the sample survey does not permit an analysis to be made of hours of work? This is certainly not the case, and examples will be given. Nevertheless, it should be pointed out that caution is advised in drawing certain conclusions from these examples.

3.2. Naturally, all the questions referred to in the following pages require that the cases of men and women be dealt with separately, as an average of hours of work which refers to both sexes generally has no point (except as an indicator of the relative percentages of the two sexes). Hours of work can be analysed according to various criteria, such as those selected for present purposes, namely, sector of activity, age and structure of household (the last factor is significant intrinsically for women). As was pointed out earlier, age is a highly important factor in analysing the hours worked by men and - even more so - by women; it seems that the increase in the number of self-employed men with age is only a partial explanation. In the case of women, on the other hand, it seems that the trend towards shorter working hours as they grow older (sometimes very significant, as in the Netherlands) is linked with the arrival of children and remains largely uncompensated when children have grown up; this phenomenon is currently being studied.

3.3. Working activity is of course an important factor, but it seems that differences between sectors are being eroded somewhat as those which were formerly acknowledged as having long working hours (part of industry, construction, transport, agriculture) are now the same as or near to the average in the majority of Member States. The major difficulty is that there are many different ways in which the various factors are interdependent and groups which are not too heterogeneous, must be established for the analysis. When the working activity is broken down into two figures and occupation is introduced into the survey, this will become easier. To specify what has already been pointed out for some service sectors, working hours and often the occupations exercised are very different depending on whether the women concerned are under or over the age of 30. It goes without saying that the type of cross-checking implied by this approach means that - if significant results are to be obtained, whether at different levels or over a period of time - it is more useful to deal with a chronological survey series as a whole, rather than take each survey separately.

4. SUGGESTIONS FOR CHANGES IN THE SURVEY

4.1. If full use is to be made of the survey to measure hours of work, it seems worth considering making changes in two main directions: firstly the survey should be turned into a continuous survey, and secondly, an attempt should be made to obtain personal replies (for all or part of the sample).

4.2. As regards the transition to a continuous survey, this would seem to have a number of advantages not connected with the problem treated here, among which may be quoted the possibility of obtaining information on cyclical trends for large groups and structural developments for small groups (by means of aggregation over more or less long periods). Also it would be possible to set up a team of investigators who would be permanent and therefore be more specialized, and also - on the basis of a general cost-effectiveness study - to transfer much of the information currently gathered as a part of censuses to a survey of this nature. To our mind, only a continuous survey of this type will permit hours of work to be measured on an annual basis, as it would also permit the establishment of rotating (panel) samples, and hence an examination of trends for different cohorts. The cohorts being studied in certain countries at the moment are subject to errors due to memory failure in respondents in the interval of six months and hence, the variations appear greater than they are.

4.3. As regards obtaining personal replies, the first step would seem to be a more exhaustive analysis - requiring a complementary survey - of the structure of time spent at work, in order to distinguish more clearly the questions which should be asked. The following standard questions could be used: how many hours did you spend at your place of work on the day before the survey? How many did you spend at your actual workstation? Were the hours worked on this particular day longer, shorter or the same as usual? Do you work 4, 5, 5½ or 6 days a week? This first phase would subsequently permit the refinement of questions on hours of work. However, the problem of individual replies must be studied from the angle of survey procedures. In other words, either the enumerator must call a second time to collect questionnaires, or another procedure must be adopted, always bearing in mind the suggestion that the survey should be continuous.

4.4. There is no escaping the fact that the proposals outlined above would lead to significant changes which could only be implemented very gradually, once the principles were accepted.

2.5. Estimation of gross flows from the Canadian labour force survey

(I. MACREDIE, Statistics Canada)

The Canadian labour force survey is a monthly sample survey of approximately 55 000 households.[1] Each month the survey generates a broad array of data on the levels of employment, unemployment, and the population outside of the labour force. These totals are disaggregated by age, sex, province, industry, occupation, etc. However, with a few exceptions such as measures of the duration of unemployment, these data are all point-in-time [2] stock estimates so that the product of the survey when viewed across time consists of a series of conceptually independent cross-sectional observations.

---

[1] This represents a sampling ratio of approximately 1:125 at the national level although for provinces with smaller populations the sampling ratio can be as high as 1:24.

[2] Labour force status (employed, unemployed, etc.) for the month is established according to the respondents' activities during a selected reference week within the month. The interviews are conducted in the week following this reference week.

While month-to-month differences in the levels of employment and unemployment measure the net change in the employment and unemployment totals, they do not disclose the substantially greater flows among the labour force categories which underlie the observed net changes. For example, between April and May 1978 the estimate of unemployment declined from 999 000 to 933 000 for a net change of 66 000. However, preliminary gross flow statistics show that between these two months over 350 000 persons moved into a state of unemployment (nearly 150 000 from employment and over 200 000 from outside of the labour force) and over 450 000 left the ranks of the unemployed (about 290 000 found jobs and somewhat more than 160 000 withdrew from the labour force).

The availability of gross flow statistics greatly enhances the analytic usefulness of the existing stock data. Perhaps this explanatory power can best be illustrated by citing a few examples of the sort of questions which can only be resolved through the use of flow data.

(i) If an increase in the number of unemployed persons is observed in a given period of time, to what extent is this increase due to persons losing or leaving their jobs and to what extent can it be attributed to persons formerly outside of the labour market beginning to look for work?

(ii) To what extent is a decline in the level of employment due to persons losing or leaving their last job but remaining in the labour force (i. e. becoming unemployed) and to what extent is this decline in employment attributable to persons withdrawing from the labour force altogether?

(iii) To what extent can a decline in the level of unemployment be attributed to persons terminating or suspending job search activities and leaving the labour force and to what extent does the decline in unemployment signify that the formerly unemployed have found jobs?

It was to enable researchers and policy analysts to answer these and similar questions that Statistics Canada undertook to develop the gross flow statistics which are the subject of this paper.

While a complete methodology for gross flow estimation has yet to be finanlized, we are well on our way to the production of these data, and assuming a favourable outcome with our data quality tests, we anticipate that we shall begin publication of gross flow data within this calendar year.

1. DESIGN OF THE CANADIAN LABOUR FORCE SURVEY

As background to the description of the gross flow estimation methodology, this section briefly describes those elements of the labour force survey which are essential to an understanding of the derivation of the flow statistics.

The labour force survey is based on a multistage area sample. The ten provinces of Canada are sampled independently and for purposes of sample selection each province has been divided into economic regions and further into strata. The next stage is the selection of primary sampling units from which clusters are drawn (in urban areas a cluster is generally one city block). The final stage is the systematic selection of dwellings from within clusters.

Once a given dwelling has been selected it remains in the sample for six consecutive months and is then replaced by another dwelling from within the same cluster. The introduction of new dwellings to replace those that have completed their six months in the sample period is done in such a way that throughout the entire sample, five sixths (83%) of the dwellings are common between any two months of the survey and this 83% is a representative unbiased sub-sample of the whole.

Once a dwelling has been chosen, all persons age 15 and over living in that dwelling are interviewed in each of the six months that the dwelling is in the sample. Each respondent is assigned a unique, numeric, identification code which is retained throughout the in-sample period so that a given respondent's record can be readily identified from among the 125 000 such records in any one month's file. This also permits the linkage of the same respondent's records for any pair of adjacent months.

It is the fact that the design of the survey allows sequential observations on the same respondents, and its capacity to link these observations, which constitutes the basis for gross flow estimation in the LFS.

As the completed questionnaires are converted to machine readable form and transmitted to the head office, they are edited and errors are corrected through imputation. The files are then weighted. In very simplified terms, weighting is accomplished in essentially three steps. In the first step each record is assigned a weight equal to the inverse of the sampling ratio (e. g. a record from an area with a sampling ratio of 1:300 is assigned an initial weight of 300). The second step is to adjust this weight for non-response. This is done at the primary sampling unit (or smaller) level where, for example, if the unit had a non-response rate of 5%, the weights for all the records in that unit would be augmented by 5%.[1] The third and final stage is the adjustment of the sum of the weights for a given province-age-sex group to independently derived population totals.[2] For example, if the sum of the weights for a given group was less than of the independent total by 2%, the weight of each record belonging to that group would be increased by 2%.

2. GROSS FLOW ESTIMATION METHODOLOGY

The task of estimating gross flows demands the completion of the cells within the matrix shown in Figure 1. The values in the margins (E(t), U(t), N(t), E(t-1) . . .) are the stocks (levels) of employment, unemployment and persons not in the labour force as measured directly (i. e., independently from gross flows estimation) from the current month's (t) and previous months (t-1) labour force surveys.

---

[1] The assumption in this method of compensating for non-response is that the non-respondents have the same demographic and labour force characteristics as the respondents. The adjustment is performed at the primary sampling unit (or smaller) level on the grounds that geographical proximity enhances the probable validity of the homogeneity assumption regarding the characteristics of respondents and non-respondents.

[2] These population totals are essentially projections from the most recent census of population (presently the one conducted in 1976) with current estimates being obtained through adjustments to the census benchmark for births, deaths, aging, immigration, emigration, and inter-provincial migration.

Figure 1 - Gross flow cross-classification of labour force status

	E(t)	U(t)	N(t)	A(t)
E(t-1)	EE	EU	EN	EA
U(t-1)	UE	UU	UN	UA
N(t-1)	NE	NU	NN	NA
A(t-1)	AE	AU	AN	

where: E = employed
U = unemployed
N = not in the labour force
A = working age population entering or exiting the survey universe

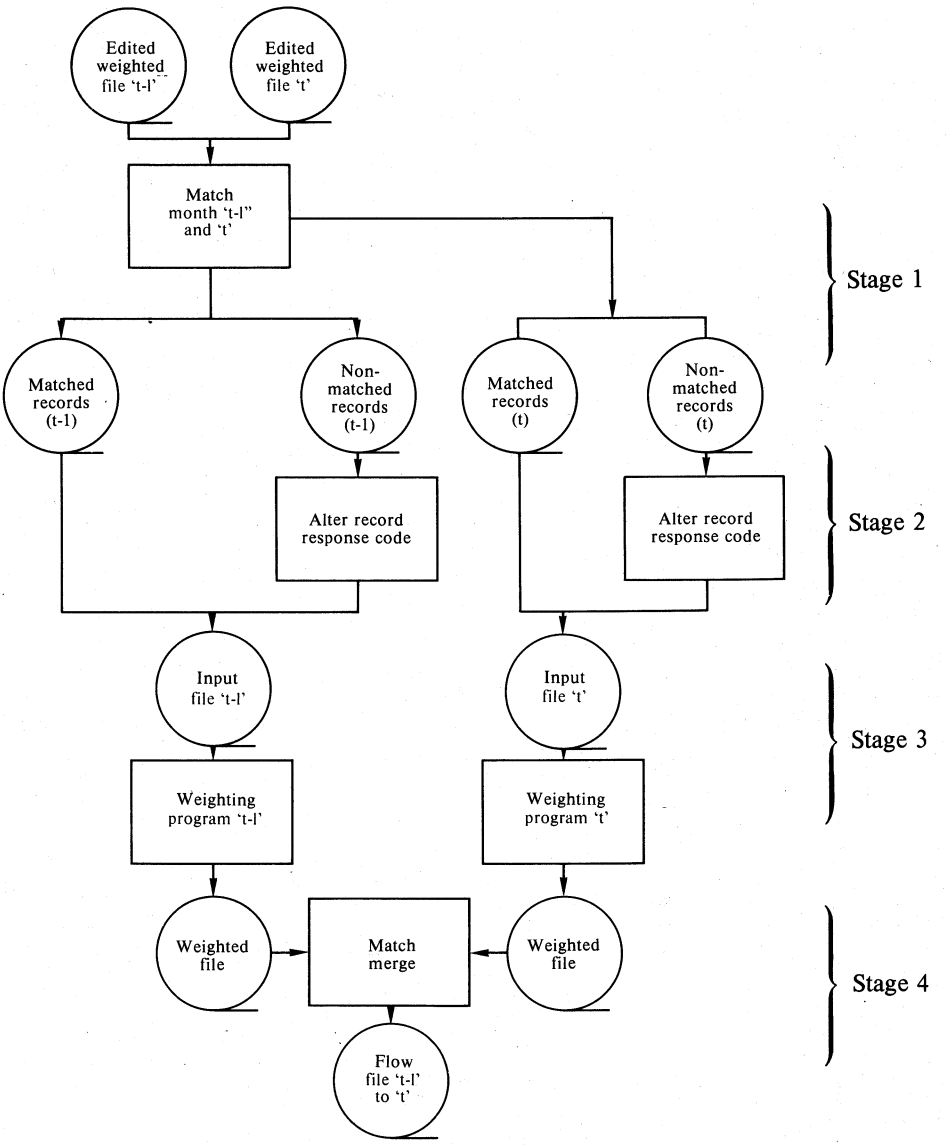
The rows of this matrix represent the disaggregation of last month's stock according to this month's labour force statuses which in the case of employment would be EE + EU + NN. In other words, EE represents the number of persons employed in both months, EU is the flow from employment last month to unemployment this month, and EN is the estimate of the flow from employment to being outside of the labour force. Additionally, there is a flow of employed persons, represented by EA, who at time (t-1) were employed but who by time (t) were no longer a part of the population which constitutes the survey's universe. The columns provide the flows to the current month stock of a given labour force status from each of the preceding month's labour force statuses, which again in the case of employment can be represented by EE + UE + NE. In this case there is a flow of persons, AE, from outside the population at time (t-1) into employment at time (t).

The diagram in Figure 2 shows the method used to obtain a flow record from the labour force survey and the total of such records forms the data base from which the flow estimates are derived. The creation of these flow records is accomplished in four stages.

In stage 1, as shown in Figure 2, we begin by matching the records on the edited, imputed, and weighted labour force survey final file for months (t-1) and (t). These are the files from which the stock estimates for months (t-1) and (t) are derived. Individual respondent's records are matched using the identification numbers described earlier. On the basis of this match we create four separate files containing the matched and non-matched samples at times (t-1) and (t). The matched file for month (t-1) contains the records of those respondents for whom labour force status information was available in both months. The file for (t) contains the same set of records but the two files are kept separately at this point since the weighting must be done on them individually as described later.

The non-matched file for month (t-1) contains records which cannot be matched due to one of the following reasons: the individual did not respond in month (t), the individual was in the group that rotated out of the sample after month (t-1) or the individual's identification number was miscoded in month (t). The non-matched file for month (t) contains an analogous group of individuals.

Figure 2 - Creation of the flow file



In stage 2, flags are set on individual records on the non-matched files to indicate that these records are to be treated as non-response for purposes of gross flow estimation.[1] These records are retained at this point since some of the information which they contain is required for weighting purposes. The non-matched and matched files are merged to create single files representing months (t-1) and (t) which are then individually weighted.

In stage 3, these files are weighted by the application of the same algorithm as used for the monthly generation of stock estimates and as the weighting operation is completed, the non-matched records are deleted from the files since they have no further role to play in the production of flow data.

In stage 4, the two files are matched and merged to create a single file which serves as input to the actual gross flow estimation process. The records on this final input file each contain the following items of information:

(i) geographic identification code (in order to be able to produce flows by province),

(ii) demographic characteristics (age, sex, etc.),

(iii) labour force status (employed, unemployed, not in the labour force) for month (t-1),

(iv) weight for month (t-1),

(v) labour force status for month (t),

(vi) weight for month (t).

To illustrate the method used to compute the flow cells of the matrix of Figure 1, we can reference the flow of persons employed in both months (i. e. the flow EE). If we compare the weights for each individual on the flow file we see the following three cases:

(i) $W_{s\,(t-1)} < W_{s\,(t)}$

(ii) $W_{s\,(t-1)} > W_{s\,(t)}$

(iii) $W_{s\,(t-1)} = W_{s\,(t)}$

where: s = labour force status

In each case, the minimum weight is allocated to the appropriate flow (in this case EE). A positive difference ($W_{s\,(t-1)} < W_{s\,(t)}$) is allocated to the inflow cell (AE) as a population increase and a negative difference ($W_{s\,(t-1)} > W_{s\,(t)}$) is allocated to the outflow cell (EA) as a population decrease. For example, if an individual had a weight of 300 in month (t-1) and 305 in month (t), the 300 would be allocated to the EE cell and the 5 to the AE cell. Analogously, if the same individual had a weight of 300 in month (t-1) and 295 in (t), the 295 would be allocated to the EE cell and 5 would have been allocated to the EA cell.

The basic problem at this point is that this methodology overestimates the population inflow and outflow vectors significantly. This is due to the fact that for every individual, the change in the weight between two consecutive months is affected both by increases (or decreases) in

[1] Persons who were non-respondents in both (t-1) and (t) would not appear at any stage in this process since they would not be represented on either of the input files to stage 1.

the size of the population and changes in the sample composition. By changes in the sample composition we are essentially talking about changes in the degree to which the *ex post* sample departs from the theoretical sample due to changes in the level of non-response, failures to include all dwellings in the universe from which the sample is drawn and failures to include in the survey all persons associated with the selected dwellings. Because the sample is weighted to independently derived population totals, these phenomena are reflected in the weights assigned to individual records. Since changes in the composition of the sample cause larger changes than changes in the size of the population, this results in overestimation of the inflows and outflows associated with population change.

To correct this problem, we intend to use independently derived estimates of population inflow and outflow to adjust the totals of the population flow vectors of Figure 1.[1] This will be done, for example, by constraining the sum of the originally estimated AE, AU and AN (call this s) to equal the independently derived measure of total population inflow (call this I). Operationally this takes the form of replacing AE, AU and AN with AE $(\frac{I}{S})$, AU $(\frac{I}{S})$ and AN $(\frac{I}{S})$ respectively. An analogous procedure will be used to adjust the originally estimated outflow vector. However, it should be recognized that while this procedure ensures that the total of AE, AU and AN is not overestimated, there may still be biases in the individual elements of AE, AU and AN. This is attributable to the fact that changes in the sample composition and not just changes in the population can still have an effect on the relative magnitudes of AE, AU and AN particularly if the sources of shifts in the sample composition are correlated with labour force status.

The final step in obtaining publishable gross flow statistics is the achievement of arithmetic consistency between the gross flows and the stocks. Because the above methodology involves the estimation of the flows (EE, EU, EN, etc.) from a different data base than that used for the stocks (E(t), E(t-1), U(t), etc.) the sum of any flow vector will not necessarily equal the stock. For example, the following relationship will generally not hold although the degree of inequality should be small:

$$E(t-1) = EE + EU + EN + EA$$

Conceptually the sum of any given flow vector should equal the appropriate stock and so the absence of this consistency makes the data user's task considerably more difficult by leaving undefined residuals when the flow data is used in conjunction with the corresponding stocks. The technique chosen to achieve the desired arithmetic consistency is known as the RAS method.[2] This consists of a converging iterative process which modifies the cells of the 4 by 4 matrix until all rows and columns simultaneously sum to their marginal stock totals.

Since the RAS method will eventually achieve consistency given any set of marginal totals and initial cell values, one must be suspicious of the accuracy of any final flow estimates (i. e., after the application of RAS) which differ substantially from those initially obtained using the matched file. Fortunately, the experience to date at Statistics Canada has been that changes

---

[1] These population inflow and outflow estimates are essentially the same-data on births, deaths, aging, immigration, emigration and inter-provincial migration, used to generate current population totals from the census benchmark (see footnote 2, p. 99).

[2] This adjustment is described in Michael BACHRACH, 'Estimating Non-Negative Matrices from Marginal Data', *International Economic Review, Vol. VI* (September 1965).

to the cells effected by the application of the RAS method have been both absolutely and relatively small and well within the bounds of the sampling variability associated with the cells.

3. POSSIBLE SOURCES OF ERROR IN GROSS FLOW STATISTICS

In addition to those mentioned above, there are a number of sources of error in gross flow data which are briefly described in this section. While most of these cannot be eliminated from the data, several of them can be approximately measured and can therefore be taken into consideration by users of gross flow data.

Sampling variability

Gross flow data are estimated from a subset of the total labour force survey sample. This reduction in the effective sample size serves to increase sampling variability over that for estimates of comparable magnitudes relating to labour force stocks derived from the full sample.

The exclusion of the one sixth of the total sample which is not common to two adjacent months is the numerically most important source of this increase in sample variability. However, since the sample is designed to be representative by each of the six 'rotation groups', this source of reduction, while raising the variance of the flow data, should leave them unbiased.

The sample is further reduced by the miscoding of record identifiers and non-matches due to non-response in either or both months for which the flows are calculated. Unlike the reduction in sample size due to sample rotation, these sources of reduction can lead to an unknown degree of bias. Accordingly, the labour force survey, through the extensive use of computer support mechanisms (including pre-printing of record identification numbers and data entry validation) attempts to minimize the occurrence of errors in record identification. The problem of non-response on the part of selected households is controlled through constant monitoring of the levels of non-response and emphasizing to the interviewers the importance of obtaining interviews from as many selected households as possible.

Labour force status misclassification

Errors in the gross flow estimates attributable to misclassification of labour force status are of considerable concern since such errors do not tend to 'cancel out' as they do in stock estimates. This can be seen by taking the simple case of two exhaustive and mutually exclusive states of A and B, both of which are subject to misclassification. The impact on stock and flow data can be seen in the example of Figure 3.

Figure 3

	month (t-1)		*month (t)*	
	true	observed	true	observed
Record 1	A	B	A	A
Record 2	A	A	A	B
Record 3	B	B	B	A
Record 4	B	A	B	B

In both months (t-1) and (t) the 'true' estimates of the totals are equal to the 'observed' estimates, i. e., 2A and 2B but for the flows, the 'true' flows are 2AA, 2BB, OAB and OBA but the observed flows are OAA, OBB, 2AB and 2BA.

Statistics Canada is in the process of refining its re-interview programme[1] for the labour force survey. Once this program has accumulated sufficient data and these data have been validated, we will be in a position to generate measures of response variance and bias which will be used to quantify the degree of error introduced into the gross flow estimates by labour force status misclassification.

Rotation group bias

If one takes each of the rotation groups and estimates labour force characteristics such as employment, unemployment and unemployment rates, etc., based only on the one-sixth sub-sample that that rotation group represents, one finds that there tends to be a systematic relationship between the magnitude of the estimates obtained and the number of months that rotation group has been in the sample. This occurs in spite of the fact that each rotation group has been designed to be a representative sub-sample of the whole. For example, the unemployment rate is highest for the rotation group which is in the sample for the first month, and higher for the group that has been in for two months than the rate for the group which rotated in three months ago, and so on. To what extent this phenomenon is in fact a non-response bias (non-response tends to be higher in the first month) and to what extent it may be attributable to respondent 'conditioning' in repeated interviews has yet to be established. Since gross flow estimation depends on matched records over time and its weighting includes an adjustment for non-response, either source of rotation group bias could conceivably contribute to biases in the gross flow statistics. Both rotation group bias and its impact on estimated gross flows will be the subject of further investigation.

[1] In the re-interview programme a small sub-sample of all households is re-interviewed in a given month by senior interviewers. Since these re-interviews cover the same households, and the questions asked refer to the same reference week, differences between the originally obtained questionnaire entries and those obtained in the re-interview can be used to obtain measures of the nature and incidence of response errors leading to labour force status misclassification.

SUMMARY

The development of analytically useful gross flow statistics to supplement the labour force stock data has been a long-standing goal of Statistics Canada and we are hopeful that this goal can be achieved in the near future. Some of the difficulties encountered on the way to gross flow estimation have been surmounted, some will require further work (possibly continuing after publication has begun) and others may prove to be beyond remedy. However, few data sets are ever totally free of unresolved difficulties and as long as the nature of the remaining problems can be articulated and does not prevent meaningful interpretation, we will proceed with the publication of the data in response to the continuing demand on the part of the data user community for this type of information.

2.6. Forecasting employment

- The use of available statistics as a basis for forecasting employment in the Community

(G. McLEOD, Gwilym JENKINS & Partners Ltd)

1. OBJECTIVES AND STRUCTURE OF THIS REPORT

1.1. The objectives of the report were defined to be:

(i) to describe the use made of existing statistics, achievements and problems, with special reference to shortcomings in the statistics,

  (a) in the development of a forecasting system for forecasting employment,

  (b) in their operational use;

(ii) to describe in particular the more detailed experience available for Italy, Ireland and the Netherlands.

1.2. The structure of the report is as follows:

(i) Section 2 describes the statistical models that have been developed for forecasting employment and the corresponding computerized system for generating forecasts.

(ii) Section 3 discusses the problems and difficulties encountered in using Eurostat statistics for developing models and generating forecasts.

(iii) Finally, Section 4 describes more experience obtained in more detailed studies carried out for Italy, Ireland and the Netherlands.

(iv) Section 5 contains some brief conclusions.

2. THE EXISTING MODELS AND COMPUTERIZED FORECASTING SYSTEM

2.1. In collaboration with the Commission's Directorate-General for Employment, Education and Social Affairs, Gwilym Jenkins and Partners Ltd (GJP) have been concerned for five

years in an on-going programme of research and forecast generation. The main references are given in the bibliography (references 1-9) based on statistical techniques developed in references 10 and 11.

2.2. The work has been evolutionary in nature, both data and model building being refined as experience has been gained. Models and forecasts are now available for the five-level hierarchy shown in Figure 1. The work has now reached a sufficiently definitive stage for GJP to have been asked to develop a computerized system for generating forecasts and this is now in operation. The structure of the computer system is shown in Figure 2. Based on various future GDP assumptions, supplied by the Directorate-General for Employment and Social Affairs, the forecasting system generates employment forecasts in such a way that:

(i) the summary tables in the computer output are consistent with the tables in the Eurostat publications,

(ii) more detailed tables are available for each series being forecast, for example construction employment (dependents) in France,

(iii) the forecasts in the hierarchy of Figure 1 are so arranged that the forecasts at any level of the hierarchy are constrained so that when all the forecasts at one level of the hierarchy are added they are equal to the forecast of the series in the next level above.

2.3. The most recent statistical models used for forecast generation are given in reference 9. The models are of two types:

(i) univariate models in which employment is related to past values of the employment series. Such models are needed at certain points in levels 4 and 5 because of the impossibility of relating the disaggregated employment series to macroeconomic variables,

(ii) transfer function models in which employment is related to GDP. The majority of models are of this type.

3. THE USE OF EMPLOYMENT DATA FOR MODEL BUILDING AND FORECASTING

3.1. In the earlier work, models and forecasts were based on quarterly data from national statistical services. However, in subsequent work it was decided to use annual data for the following reasons:

(i) to include employment information for dependents and independents - quarterly employment data usually refer to dependents only;

(ii) there was often no quarterly data available outside the manufacturing sector;

(iii) Eurostat data are available annually, thus providing comparability between countries.

Whereas the use of annual data has proved successful for forecasting employment, considerably better forecasts could be obtained if the statistical models were based on quarterly data. Hence the collection of consistent quarterly data on total employment (dependents plus independents) is a desirable long-term objective.

Figure 1 - Five-level hierarchy of forecasting models described in this report

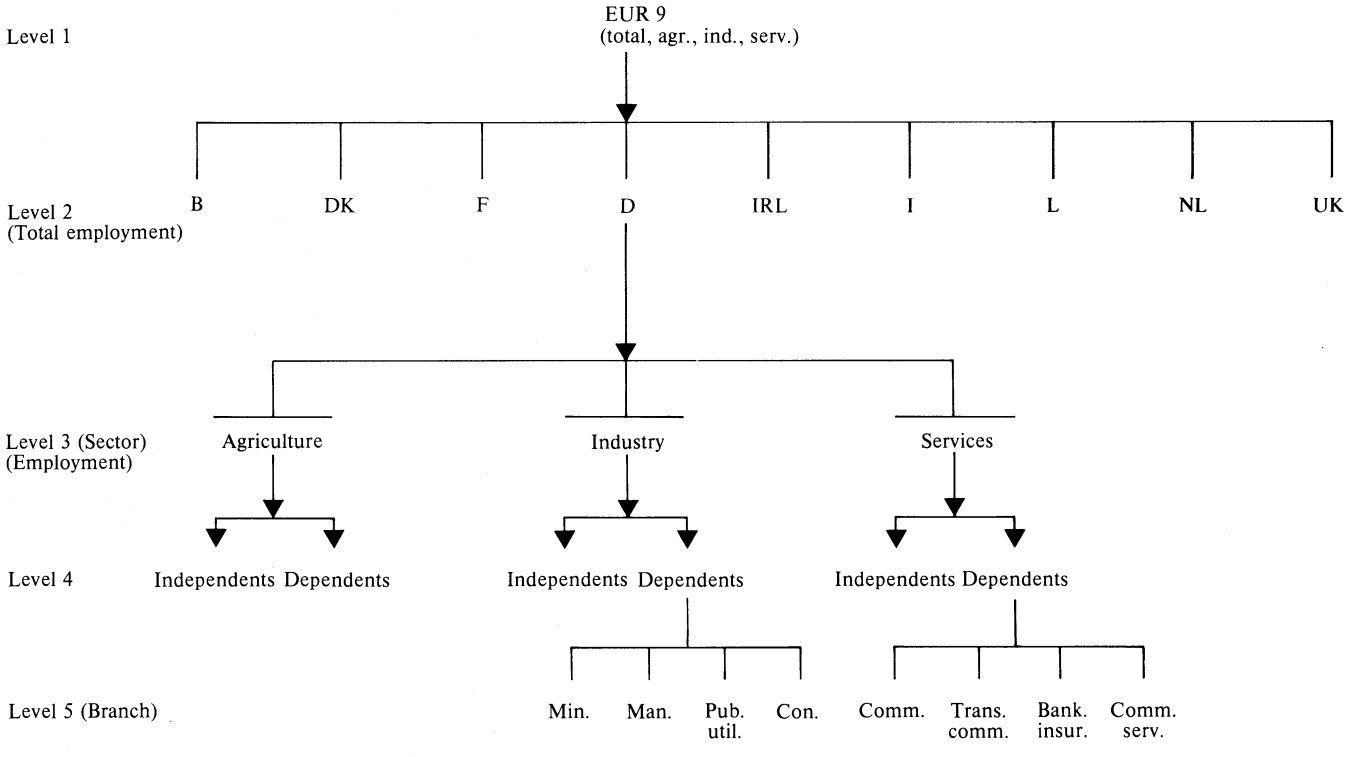
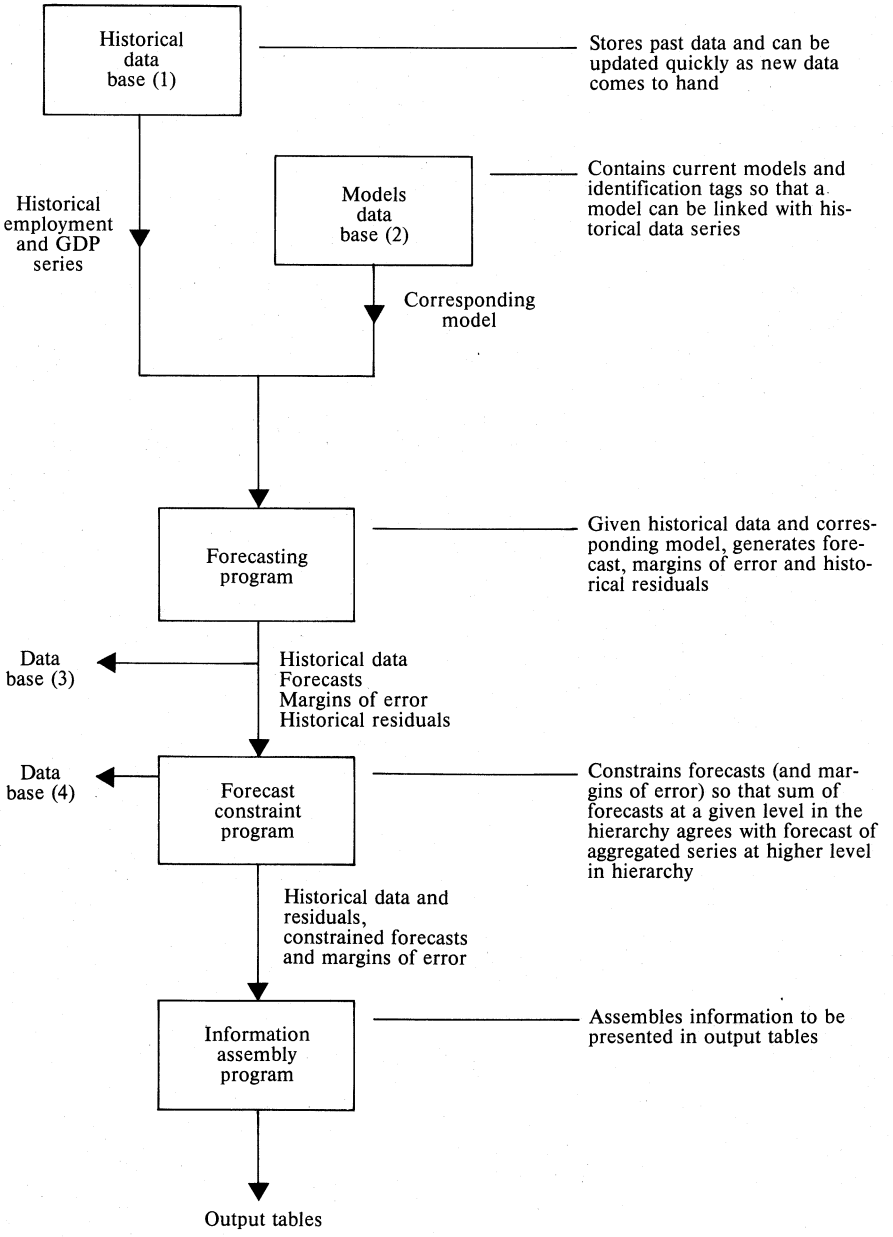


Figure 2 - Simplified flow diagram of computerized forecasting system



3.2. In earlier work, models and forecasts were based on levels 1–3 of the hierarchy shown in Figure 1. In references 2 and 3, models and forecasts were developed at level 5 but this work was not pursued because of the difficulty in obtaining consistent data from member countries. With the use of consistent Eurostat employment data for dependents only, many of the earlier difficulties have now been overcome. Hence there exists for the first time in the history of this work a consistent set of data for forecasting employment within member countries. However, when the last forecasts were generated, data at level 5 were not available for Denmark and Italy and recent data were not available for Luxembourg at levels 2–5. As a result, it was not possible to generate forecasts for these particular series, emphasizing the need to improve data quality and timeliness even further.

3.3. Before mentioning some of the present problems with the Eurostat data, it is worthwhile setting down the many positive benefits that have resulted from their publication. These may be summarized as follows:

(i) The use of regularly published, consistent data on employment has cut down enormously the amount of time spent in data gathering, a very important benefit for a forecasting system which generates several forecasts per year.

(ii) In earlier work, no success was obtained in introducing GDP as an explanatory variable at a branch level (level 5), with the exception of manufacturing employment. As a result, only univariate models could be developed, employment being forecast from its past history only. However, the most recent models incorporate GDP as an explanatory variable at level 5 for manufacturing, construction and commerce. Since these three branches account for the majority of jobs in a particular economy, this represents considerable progress. We attribute some of this progress to improvements in data quality.

(iii) The statistical relationships developed contain residuals which are checked for randomness during the model building process. Occasionally, large residuals occur when compared with their residual standard deviation. Thus, a large positive (negative) residual indicates that the corresponding data point is likely to be abnormally high (low). As model building and forecast generation have developed:

  (a) residual standard deviations have become smaller, indicating improvement in model building and resulting in better forecast performance,
  (b) there has been a tendency for less large residuals to occur.

  Some of these improvements result from increased experience in model building but there is little doubt that some result from improved data quality and consistency.

3.4. Despite the important advances, summarized briefly in Section 3.3, a number of data problems remain. The following is a brief summary of the main problem areas:

(i) Referring to Figure 1, at level 5 we have been forced to work with data on dependents only. It would be useful if member countries could eventually provide data on total employment (dependents plus independents).

(ii) We have less confidence in sector data (level 3) for independents than the remaining data. For example, in one instance it was found that the data for industry dependents was the exact mirror image of the corresponding data for services dependents. This error was corrected in a subsequent Eurostat publication but it emphasizes the need for

vigilance in checking data consistency in the central statistical offices of member countries.

(iii) Extensive historical revisions still continue to be made to some data series. It is appreciated that the move towards consistency of definition has created problems for member countries. However, it is hoped that the number of such revisions will decrease in the future since the effect on the work of data users is considerable. Note that this statement does not refer to minor revisions of very recent data since such revisions are a common feature of all macroeconomic work.

(iv) The breakdown of data by sector (level 3) and branch (level 5) used is that of the International Standard Classification (ISIC). Further disaggregation on this basis is not available. Much more detailed disaggregation is available for data published on the basis of the Community classification NACE. However, this has the double disadvantage that the annual series are not long enough for analyses (since 1974) nor do the available data cover the service sector.

(v) Whereas GDP data is available on a quarterly basis, consistent employment data is only available on an annual basis. Exploratory work is in progress with a view to incoporating quarterly instead of annual GDP data into the existing statistical models. However, it would be highly desirable in the long term for employment data to be made available on a quarterly basis since this could have a significant impact on the usefulness of the data for forecasting and other purposes.

(vi) In a detailed study carried out for the Netherlands (reference 7), 'hours worked and wages' were introduced into the model for total country employment. Of these two variables, the one of most immediate importance is 'hours worked'. At present, Community data on working hours are not entirely satisfactory since annual series of hours actually worked by branch are not available. Further, an exploratory preparation of productivity tables is given in reference 9. In the near future it is intended to introduce into the computerized forecasting system tables containing historical and forecast productivity at a national level. However, it would be desirable in the longer term to see the productivity tables take account of hours actually worked per year, including overtime.

4. A BRIEF SUMMARY OF DATA USAGE IN THREE DETAILED STUDIES

4.1. As part of the background research to support the on-going development of an operational forecasting system, three detailed studies have been made in three countries, involving extensive collaboration with economists in these countries. The three studies related to Italy, Ireland (reference 5) and the Netherlands (reference 7). The Italy study was concerned entirely with data quality. However, the Ireland and the Netherlands studies were much wider and involved looking at the supply as well as the demand of labour. In addition, these reports discuss the implications of the mismatch between supply and demand for economic policymaking.

4.2. The Italy report stemmed from observations in reference 2 that the model residual standard deviations for Italy were consistently higher than those for other countries. This

conclusion implied that employment data was much more volatile in Italy than in other countries. It was concluded that this could partly be explained by differences in definition and sampling methods employed by the Italian Statistical Office (ISTAT). These difficulties have now been resolved with the use of the Eurostat statistics. Although residual standard deviations are still on the high side for Italy, they are by no means out of line with those of other countries.

4.3. The Ireland study (reference 5) had a major influence on the way in which the hierarchy of Figure 1 was structured but again, since it occurred prior to the use of the Eurostat employment data, quality problems encountered in that project are no longer relevant to present work. However, the project emphasized the difficulties in introducing:

(i) GDP as an explanatory variable at level 5,
(ii) variables other than GDP at higher levels in the hierarchy.

4.4. The Netherlands study (reference 7) was different from other studies since we were able to obtain direct access to the extensive data used by the Netherlands Central Planning Bureau. The research revealed that:

(i) explanatory variables, other than GDP, are unlikely to be of any value below level 2 (national level),
(ii) at a national level, improvements in model building can be obtained by introducing 'hours worked and wages' into the model. Whereas the interpretation of the wages effect presents problems of economic interpretation, the 'hours worked' variable presents less difficulties. Reference has already been made in Section 3.4 to the intention to introduce this variable into our work in the near future.

5. CONCLUSIONS

The use of consistent employment data as contained in the Eurostat publications has had a major influence on the development of an operational computerized system for forecasting employment in member countries. This forecasting is carried out jointly by the Directorate-General for Employment, Education and Social Affairs and GJP Ltd.

The major benefits from the use of the Eurostat statistics have been in simplification of data collection, improvements in model building partly due to continuing improvements in data quality - and in the reduction of the number of anomalous data points.

Problems with data quality still remain, the most important being due to the non-availability of certain data on employment at level 5, extensive historical revisions and the timeliness of the data.

In the longer term considerable advantages would result from the production of consistent quarterly employment data and better data on 'hours worked' and 'average wages'.

BIBLIOGRAPHY

1. 'Forecasting of employment on a sector basis for each of the member countries.' Commission of the European Communities Report, May 1976.

2. 'Sectoral employment in the European Community: Trends and forecasts.'
Commission of the European Communities Report, May 1977.

3. 'Sectoral employment in the European Community: Trends and forecasts (Banking insurance and other services sector).'
Commission of the European Communities Report, Study No 75/6.

4. 'Sectoral employment in the European Community: Trends and forecasts (Italy).'
Commission of the European Communities Report, Study No 78/15.

5. 'Employment prospects in Ireland: Assessing the medium-term balance.'
Commission of the European Communities Report, Study No 77/26.

6. 'Models for forecasting employment in the primary, secondary and tertiary sectors of member countries.'
Commission of the European Communities Report, Study No 78/15.

7. 'Analysis of sectoral employment trends in the Netherlands.'
Commission of the European Communities Report, Study No 78/15(2).

8. 'New models and an computerized system for forecasting employment at five levels in the member countries.'
Commission of the European Communities Report, Study No 79/14.

9. 'Analysis of productivity changes in the member countries for the period 1960–79.'
Commission of the European Communities Report, Study No 80/29.

10. G. E. P. BOX and G. M. JENKINS, 'Time series analysis: Forecasting and control.'
Holden-Day, Revised edition, 1976.

11. G. M. JENKINS, 'Practical experiences with modelling and forecasting time series.'
GJP Publications, 1979.

Part C:
Employment and unemployment

Statistics conducted by the Statistical Office of the European Communities

(Position at October 1981)

The statistics of employment and unemployment produced by Eurostat come both from inquiries and statistical series specially designed for this purpose and from investigations having other themes as their principal object. It is therefore useful to give a comprehensive list of all the statistics available to the Office concerning employment and unemployment.

The inquiries or series are grouped according to categories of person covered, distinguishing those relating to the entire population, those relating to persons in employment and those confined to employees.

The document has been drawn up by Division B1, 'Population, employment, education and general social statistics', in close collaboration with the other services of the Office concerned.

List of Eurostat services responsible for statistics including data on employment

Directorate A: General economic statistics
- A 1 Economic accounts
- A 2 Regional and financial statistics

Directorate B: Demographic and social statistics
- B 1 Population, employment and general social statistics
- B 2 Wages, incomes and social welfare

Directorate C: Industrial, transport and services statistics
- C 2 Industrial structure, transport and services statistics
- C 3 Short-term industrial statistics

Directorate D: Agriculture, forestry, fisheries and energy statistics
- D 1 Agricultural accounts and structures

Grouping of statistics of employment and unemployment by category of employment (with reference to the responsible service)

	Responsible service(s)	Fiche No
I - *Overall view of the active population, employment and unemployment*		
1. General census of population (every 10 years, latest census: 1981)	B 1	1
2. Labour force sample survey (every two years)	B 1	2
3. Annual statistics of active population and of employment	B 1	3
II - *Statistics covering total employment* (self-employed, employees, family workers), all activities or specific sectors		
1. Annual estimates on employment		
1.1. Within the framework for demographic and social statistics	B 1	3
1.2. Within the framework of national accounts (ESA)		
1.2.1. at national level	A 1	4
1.2.2. at regional level	A 2	5
2. Labour force sample surveys (every two years)		
2.1. at national level	B 1	2
2.2. at regional level	B 1/A 2	2
3. Agriculture		
3.1. Annual statistics of agricultural manpower	D 1	6
3.2. Agricultural structure inquiry		
3.2.1. at national level	D 1	6
3.2.2. at regional level	D 1/A 2	7
4. Industry		
Coordinated annual inquiry on industrial activity		
4.1.1. at national level	C 2	8
4.1.2. at regional level	C 2	8
5. Services		
5.1 Structure and activity of enterprises in wholesale and retail trade	C 2	9
5.2. Structure and activity of enterprises in transport	C 2	10

	Responsible service(s)	Fiche No
III - *Statistics of employees* all activities or specific sectors		
1. Labour force sample survey (every two years)		
1.1. at national level	B 1	2
1.2. at regional level	B 1/A 2	2
2. Annual harmonized statistics on employees by NACE 0-9 class		
2.1. at national level	B 1	11
2.2. at regional level	B 1/A 2	11
3. Harmonized statistics of foreign workers	B 1	12
3.1. Stocks statistics		
3.1.1. at national level		
3.1.2. at regional level		
3.2. Flow statistics		
3.2.1. at national level		
3.2.2. at regional level		
4. Agriculture		
4.1. Employment of manual workers according to the inquiry on earnings in agriculture (annual)	B 2	13
4.1.1. at national level		
4.1.2. at regional level		
5. Industry		
5.1. Statistics of short-term trends in industry, building and civil engineering (NACE 1-5)	C 3	14
5.2. Labour costs inquiry on employees (every three years, latest inquiries: 1978, 1981)		
5.2.1. at national level	B 2	15
5.2.2. at regional level	B 2/A 2	15
5.3. Structure of earning inquiries on employees (latest inquiry: 1978)		
5.3.1. at national level	B 2	16
5.3.2. at regional level	B 2/A 2	16
5.4. Monthly statistics on employees in ECSC industries	B 1	17
5.4.1. coalmines		
5.4.2. iron ore mines		
5.4.3. iron and steel industry		
5.4.3.1. at national level		
5.4.3.2. at regional level		

	Responsible service(s)	Fiche No
6. Services		
6.1. Labour costs inquiry on employees (every three years, latest inquiries: 1978, 1981)		
6.1.1. at national level	B 2	15
6.1.2. at regional level	B 2/A 2	15
6.2. Structure of earning inquiries on employees (latest inquiry: 1978)		
6.2.1. at national level	B 2	16
6.2.2. at regional level	B 2/A 2	16
IV – *Unemployment statistics*		
1. Number of unemployed registered at public employment offices (every year and twice a year)		
1.1. at national level	B 1	18
1.2. at regional level	B 1/A 2	18
2. Labour force sample survey (every two years)		
2.1. at national level	B 1	2
2.2. at regional level	B 1/A 2	2

Recapitulation table of the main criteria picked up

Employment

Criterion \ Inquiry fiche No	Population censuses	Labour force	Annual estimate: Social	Annual estimate: ESA	Agricultural inquiry	Industrial inquiry	Basic statistics	Foreigners	Short-term industrial trends	Labour costs
	1	2	3	4/5	6	8	11	12	14	15
Personal characteristics										
- Sex	x	x	x	-	(x)	x	x	x	-	x
- Age	x	x	-	-	-	-	-	x	-	x
- Occupation	x	-	-	-	-	-	-	-	-	-
Category of employment										
- Total population	x	x	-	-	-	-	-	-	-	-
- Occupied persons	x	x	x	x	x	x	-	-	-	-
- Self-employed	x	x	x	-	x	x	-	-	-	-
- Employees	x	x	x	x	x	x	x	x	x	x
- Manual workers	x	x	x	-	-	x	-	-	x	x

- Family workers	x	x	-	-	x	x	-	-	-	-
Activity										
- Agriculture	x	x	x	-	-	-	x	x	-	-
- Industry	x	x	x	-	-	x	x	x	x	x
- Services	x	x	x	-	-	-	x	x	-	(x)
- NACE - 1 digit	x	x	-	-	-	x	x	x	x	x
- NACE - 2 digits	x	-	-	-	-	x	x	x	x	x
- NACE - 3 digits	(x)	-	-	-	-	x	-	-	x	(x)
- NACE selection		-	-	-	x	-	x	-	-	x
- NACE/CLIO	-	-	-	x	-	-	-	-	-	-
Regions										
- NUTS I	x	x	-	x	(x)		x	x	-	(x)
- NUTS II	x	x	-	x	(x)		x	(x)	-	-
- NUTS III	x	-	-	(x)	(x)		-	-	-	-

NB: Symbol (x) = Partial information.

	BR Deutsch-land	France	Italia	Neder-land	Belgique/ België	Luxem-bourg	United Kingdom	Ireland	Danmark	Ἑλλάda
Unemployment at month-end			*Table I: Changes in registered unemployed (monthly)*							
1 Total registered unemployed	x	x	x	x	x	x	x	x	x	x
of which:										
1.1 Young people under 25 years	(b)	x	x	x	x	x	x	x	x	–
1.2 Foreigners	x	(b)	–	x	x	x	–	–	x	–
Vacancies										
2 Total at month-end	x	x	(a)	x	x	x	x	x	x	–
3 New notifications during the month	x	x	–	x	x	x	x	x	x	–
Unemployment registered during the month										
4 Total, of which:	x	x	x	x	x	x	x	–	x	x
4.1 Young people under 25 years	–	x	< 21	x	x	–	–	–	x	–
Vacancies filled during the month										
5 Total, of which:	x	x	x	x	x	x	(b)	–	x	–
5.1 Filled by unemployed	–	x	–	–	x	–	–	–	–	–

Tables II, III: Unemployed by age groups and by duration of unemployment (six-monthly)

Transmission		S	N	S	S	N	S	S	–	S
Reference month		May/ Sept.	month- ly	April/ Oct.	April/ Oct.	April/ Oct.	monthly	monthly	–	April/ Oct.
	Age groups									
1	< 18 years	x	x	x	< 19	x	x	x	x	x
2	18–19 years	x	18–21	x	19–22	x	18–24	x	x	x
3	20–24 years	x	22–24	x	23–24	x	25–29	x	x	x
4	25–34 years	x	25–39	x	25–39	x	30–39	x	x	x
5	35–44 years	x	40–49	x	40–49	x	40–59	x	x	x
6	45–54 years	x	50–59	x	50–54	x	60 +	x	x	x
7	55–59 years	x	≥ 60	x	50–59	x		x	x	x
8	60–64 years	x	–	x	60–64	x		x	x	x
9	≥ 65 years	–	–	–	–	–		x	–	x
10	Total	x	x	x	x	x		x	x	x
Duration of unemployment										
11	< 1 month	x	x	x	x	x	x	x	–	x
12	1–< 3 months	x	x	x	x	x	x	x	–	x
13	3–< 6 months	x	x	x	x	x	≥ 3 months	x	–	x
14	6–< 12 months	x	x	x	x	x	–	x	–	x
15	12–< 24 months	x	x	≥ 12 months	≥ 12 months	x	–	x	–	x
16	≥ 24 months	x	x	–	–	x	–	–	–	x

Table IV: Analysis by activity branch (quarterly)

Unemployed	x	x	x (a)	–	x	–	x	x	–	–
Transmission	S	N	S	–	S	–	S	N	S	–
Reference month	V/IX	III/VI/ IX/XII	I/IV/ VII/X	–	I/VII/ X	–	II/V/ XI	monthly	monthly	–

	BR Deutsch-land	France	Italia	Neder-land	Belgique/ België	Luxem-bourg	United Kingdom	Ireland	Danmark	'Ελλὰda
Vacancies	x	x	–	–	–	–	x	–	x	–
Transmission	S	N	–	–	–	–	S	–	S	–
Reference month	III/VI/ XII	III/VI/ IX/XII	–	–	–	–		–	monthly	–
				Table V - Analysis by occupation (quarterly)						
Unemployed	x	x	x	x	x	x	x	x	x	–
Transmission	S	N	N	S	S	S	N	N	S	–
Reference month	I/IV/ VII/X	III/VI/ IX/XII	monthly	I/IV/ VII/X	I/IV/ VII/X	monthly	VI/IX/ XII	III/VI/ IX/XII	monthly	–
Vacancies	x	–	–	x	x	x	x	–	–	–
Transmission	S	–	–	S	S	S	N	–	–	–
Reference month	I/IV/ VII/X	–	–	I/IV/ VII/X	I/VI VII/X	monthly	VI/IX/ XII	–	–	–
				Table VI: Analysis by nationality (six-monthly)						
Unemployed by nationality	x	x	–	x	x	x	–	–	x	–
Transmission	S	N	–	S	S	S	–	–	S	–
Reference month	IV/X	III/VI/IX	–	IV/X	1980	monthly	–	–	monthly	–
				Table VII: Regional analysis: Registered unemployed (Regions - level II, six-monthly)						
Registered unemployed at end of the month	x	x	x	x	x	x	x	x	x	–
Young unemployed under										

Table VIII: Regional analysis: Registered unemployed by age groups
(Regions - level II, six-monthly)

Age groups									
15-24 years	x	<18	x	x	x	<18	x	x	x
25-34 years	x	18-21	x	25-39	x	19-24	x	x	x
35-44 years	x	22-24	x	40-49	x	25-29	x	x	x
45-54 years	x	25-39	x	50-54	x	30-39	x	x	x
55-59 years	x	40-49	55-64	55-59	x	40-59	x	x	x
60-64 years	x	50-59		x	x	60+	x	x	x
65 years and over	x	60+	x	-	-				
Reference month	V/IX	monthly	IV/X	IV/X	-	-	IV/X		12 months

Table IX - Regional analysis: Duration of unemployment
(Regions - level II, six-monthly)

Duration of unemployment									
< 1 month	x	x	x	x	x	x	x	-	x
1 - < 3 months	x	x	x	x	x	x	x	-	x
3 - < 6 months	x	x	x	x	x	>3months	x	-	x
6 - < 12 months	x	x	x	x	x		x	-	x
≥ 12 months	x	x	x	x	x		x	-	x
1 to 2 years									
over 2 years									
Reference month	V/IX	monthly	IV/X	IV/X	since 80 IV/X	-	IV/X	-	I/VII 12months

S: Standardized table.
N: National presentation.
X: available.
P: incomplete.
-: not available.
(a) Only five activity branches.
(b) Quarterly.

Descriptive fiches by inquiry or statistics

No 1 General population censuses

No 2 Labour force sample survey

No 3 Annual statistics of active population and of employment

No 4 Annual estimate of the occupied population based on the ESA (European system of integrated economic accounts) rules

No 5 Estimation of employment within the framework of regional economic accounts (ESA regions)

No 6 Annual statistics of agricultural manpower

No 7 Agricultural structure inquiry

No 8 Coordinated annual inquiry on industrial activity

No 9 Structure and activity of enterprises in wholesale and retail trade

No 10 Structure and activity of enterprises in transport

No 11 Harmonized statistics of employees in employment

No 12 Harmonized statistics of foreign workers

No 13 Employment of manual workers according to the inquiry on earnings in agriculture

No 14 Statistics of short-term trends in industry, building and civil engineering

No 15 Labour costs inquiry

No 16 Structure of earnings inquiry

No 17 Employment in ECSC industries

No 18 Number of unemployed registered at public employment offices

General population censuses
(Fiche No 1)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiries directed to households, covering the entire population (national concept)

2. **Tabulations concerning employment**

   (a) *Category of persons*
   - economically active: self employed/employees/family workers/unemployed
   - not economically active

   (b) *Economic activity*
   NACE 2-digit groups
   For certain activities, NACE 3-digit groups

   (c) *Hours of work*
   For some countries only: number of hours worked in a reference week

   (d) *Personal characteristics*

Sex:	yes
Age:	yes
Occupation:	ISCO (at 2-digit level)

II - REGIONAL DISTRIBUTION

Levels I, II and III

III - PERIOD AND TIMING

1. **Periodicity**
   About every 10 years

2. **Reference period**
   1981: between 1 March and 31 May (derogations for the FR of Germany, France, Italy, The Netherlands)

3. **Availability**
   Two years after reference date for the simpler tables; three to four years for detailed tabulations

IV - INFORMATION AVAILABLE

1. **Data available**
   1981: provisional figures (total and by region) for Greece, the United Kingdom, Ireland and Portugal

2. **Publications**
   1981: Provisional figures in the series Population - statistical bulletins
   1968-71: Community synthesis of the results for Member States (Social statistics)

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   1981: Council directive of 22 November 1973 on the synchronization of general population censuses

2. **Decision of working group**
   1981: Set of tables to be completed (Community census of population programme 1981 - Doc. 3065/76)

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistics

Labour force sample survey

(Fiche No 2)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry directed to households (600 000 in the Community)
   The analysis of results is confined to private households

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Total of persons having a principal occupation
   Principal occupation
   Second activity
   Self-employed, heads of undertakings
   Employees, manual workers, salaried staff
   Family workers
   Total of unemployed
   With occasional employment
   Total of non-active persons
   With occasional employment
   Looking for occasional employment

   (b) *Economic activity*
   NACE at 1-digit level, from 1981
   NACE at 2-digit level

   (c) *Hours of work*
   Number of hours
   Part-time working

   (d) *Personal characteristics*

Sex:	yes
Age:	yes
Family situation:	yes
Nationality:	yes

II - REGIONAL DISTRIBUTION

Levels I and II

III - PERIOD AND TIMING

1. **Periodicity**
   Two-yearly

2. **Reference period**
   A reference week in the spring (variable according to the discretion of Member States)

3. **Availability**
   18 to 24 months after reference data
   A reduction in the delay envisaged for 1981

IV - INFORMATION AVAILABLE

1. **Data available**
   1960, 1968-71 annual, 1973, 1975, 1977, 1979 (the form of inquiry does not permit the establishment of time series)

2. **Publications**
   1960 Informations statistiques, No 2 bis, 1963
   1973 Statistiques sociales No 1/1975
   1968 Statistiques sociales No 6/1969
   1969 Statistiques sociales No 4/1970
   1970 Statistiques sociales No 2/1971
   1971 Statistiques sociales No 3/1972
   1960, 1968-1971 Statistiques sociales No 3/1977
   1975 Statistiques sociales 1976
   1973, 1975, 1977 Stat. soc. 1980
   1979 Statistiques sociales 1981

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Regulation (EEC) No 2640/74 of the Council of 15 October 1974
   Regulation (EEC) No 1877/76 of the Council of 23 November 1976
   Regulation (EEC) No 327/79 of the Council of 13 February 1979

Regulation (EEC) No 125/81 of the Council of 20 January 1981

2. **Decisions of working group**
   Establishment of a common coding system

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistcs

Annual statistics of active population and of employment

(Fiche No 3)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Annual estimates based on various sources concerning the total active population (national internal concept)

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Self-employed/employees/ family workers/unemployed

   (b) *Economic activity*
   Agriculture/industry/services

   (c) *Hours of work*
   -

   (d) *Personal characteristics*
   Sex: yes
   Age: certain countries distinguish the active population aged under 25 years

II - REGIONAL DISTRIBUTION

-

III - PERIOD AND TIMING

1. **Periodicity**
   Annual

2. **Reference period**
   Year or mid-year estimate

3. **Availability**
   Four to six months after the end of the year

IV - INFORMATION AVAILABLE

1. **Data available**
   1950, 1955, 1958, annual 1960 to 1980

2. **Publications**
   Annual: Employment and unemployment (Social statistics): latest edition refers to 1979; 1980 in preparation
   Preliminary publication: Employment and unemployment - Statistical bulletin

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -

2. **Decision of working group**
   Transmission organized through the 'Employment statistics' working group

VI - SERVICE RESPONSIBLE

B1: Population, employment, education and general social statistics

Annual estimate of the occupied population based on the ESA[1] rules

(Fiche No 4)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Estimates based on various sources concerning the total of occupied persons (internal concept)

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Total occupied persons/occupied employees

   (b) *Economic activity*
   NACE/CLIO (regrouped to 25 branches) based on homogeneous production units

   (c) *Hours of work*
   -

   (d) *Personal characteristics*
   Sex: -
   Age: -

II - REGIONAL DISTRIBUTION

-

III - PERIOD AND TIMING

1. **Periodicity**
   Annual

2. **Reference period**
   Annual average

3. **Availability**
   About nine months

IV - INFORMATION AVAILABLE

1. **Data available**
   1960-75 for the total,
   1970-79 by branch
   Eurostat estimates by branch (25 branches) available for the period 1960-80 in the 'structural data base' - (total employment only)

2. **Publications**
   National accounts (ESA)
   (a) Aggregates (total)
   (b) Detailed tables by branch

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -

2. **Decision of working group**
   Yes

VI - SERVICE RESPONSIBLE

Division A1: Economic accounts

[1] European system of integrated economic accounts.

Estimate of employment within the framework of regional economic accounts (ESA regions)

(Fiche No 5)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Estimates based on various sources concerning total employment (internal concept)
2. **Tabulations concerning employment**
   (a) *Category of persons*
   Total employment/employees (employees only in the case of the Netherlands)
   (b) *Economic activity*
   NACE/CLIO (regrouped into 17 branches) based on homogeneous production units (services excluded for Belgium)
   (c) *Hours of work*
   -
   (d) *Personal characteristics*
   Sex: -
   Age: -

II - REGIONAL DISTRIBUTION

Level II (except FR of Germany level I, four groups of branches)
Level III (three sectors: Agriculture/industry/services - not available for Denmark)

III - PERIOD AND TIMING

1. **Periodicity**
   Annual
2. **Reference period**
   Annual average
3. **Availability**
   Two to four years after reference date

IV - INFORMATION AVAILABLE

1. **Data available**
   1970-78
2. **Publications**
   Regional accounts ESA - detailed tables by branch

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -
2. **Decision of working group**
   Yes

VI - SERVICE RESPONSIBLE

A2: Regional and financial statistic

Annual statistics of agricultural manpower

(Fiche No 6)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Estimates on the basis of different sources covering manpower in agricultural areas of 1 ha or over
2. **Tabulations concerning employment**
   (a) *Category of persons*
   Heads of undertakings
   Family workers
   Non-family manpower

(b) *Economic activity*
Agriculture (excluding forestry, fishing and industrial stockrearing not on farms)

(c) *Hours of work*
EUR 6: At least half of a normal volume of work corresponding to 280 full working days (thus, half, or 140 days)
UK, DK: Manpower regularly employed
IRL: Manpower mainly employed

(d) *Personal characteristics*
Sex: Male manpower (not available for Italy and Denmark)
Age: 14 years and over, 65 years + (not available for Italy, Belgium, the United Kingdom, Ireland and Denmark)

II - REGIONAL DISTRIBUTION

-

III - PERIOD AND TIMING

1. **Periodicity**
Annual

2. **Reference period**
1955 - 1960 - 1963 - 1966 - 1969, annual from 1970

3. **Availability**
One year

IV - INFORMATION AVAILABLE

1. **Data available**
1955, 1960, 1965, 1970, 1975
1960, 1963, 1966, 1969, 1972, 1975, 1978
Annual from 1970 to 1979

2. **Publications**
Agricultural statistics No 3/1974, Agricultural structure 1977
Yearbooks of agricultural statistics 1975 to 1981

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
-

2. **Decision of working group**
Yes

VI - SERVICE RESPONSIBLE

D1: Agricultural accounts and structure

Agricultural structure inquiry
(Fiche No 7)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
Inquiry directed to agricultural undertakings of 1 ha and over and to certain undertakings below 1 ha

2. **Tabulations concerning employment**
(a) *Category of persons*
Head of undertaking
Spouse working in undertaking
Other family workers
Non-family workers

(b) *Economic activity*
Agriculture (excluding forestry, fishing and industrial stockrearing not on farms)

(c) *Hours of work*
(a) percentage of yearly working time of a person working full-time
(b) number of days work per non-family worker occupied irregularly

(d) *Personal characteristics*
Sex: Records for all agricultural workers
Age: Recorded except for non-family workers occupied irregularly

II - REGIONAL DISTRIBUTION

In the terminology used for the inquiry on the structure of agricultural undertakings the region corresponds to level I for the Federal Republic of Germany, level II for France and Italy, for agricultural regions for the United Kingdom, for the entire country for other Member States; as for the survey district, this corresponds to level II for the Federal Republic of Germany and Benelux and to level III for the other Member States.

III - PERIOD AND TIMING

1. **Periodicity**
1966-68, 1970-72, 1975-76, 1976-79, 1979-80, 1982-83

2. **Reference period**
1966,1970-71, 1975, 1977, 1979-80, 1983

3. **Availability**
-

IV - INFORMATION AVAILABLE

1. **Data available**
Inquiry 1966, 1970 (except one Member State), 1975 and 1977 (except one Member State)

2. **Publications**
(a) Inquiry on the structure of agricultural undertakings 1966/67 (13 volumes and seven internal documents)

(b) World census of agriculture 1970/71, harmonized results for the six initial Member States of the EC (two internal documents)

(c) Community inquiry on the structure of agricultural undertakings 1975 (six volumes)

(d) Inquiry on the structure of agricultural undertakings 1975 and general census of agriculture 1970/71 - summary results (internal document D/SB/279)

(e) EC inquiry on the structure of agricultural undertakings 1966/67-1977 (in preparation)

(f) 1975 inquiry on the structure of agricultural undertakings, results using the Community typology of undertaking (internal document D/SB/304).

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
(a) Regulation (EEC) No 70/66 of the Council
(b) Council Directive 69/400/EEC
(c) Council Directive 75/108/EEC
(d) Regulation (EEC) No 3228/76 of the Council
(e) Regulation (EEC) No 218/78 of the Council

2. **Decision of working group**
-

VI - SERVICE RESPONSIBLE

D1: Agricultural accounts and structures

Coordinated annual inquiry on industrial activity
(Fiche No 8)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry addressed to enterprises for the collection of data by enterprise, by unit of economic activity (UEA) and by establishment (local units). The inquiry covers enterprises occupying 20 or more persons and the principal activity of which concerns one of the NACE groups covering industry (NACE 1 to 5)

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees/manual workers
   Proprietors working in the enterprise/family workers (by establishment total occupied persons)

   (b) *Economic activity*
   Principal activity of the enterprise
   Detailed NACE

   (c) *Hours of work*
   -

   (d) *Personal characteristics*
   Sex: yes
   Age: -

II - REGIONAL DISTRIBUTION

-

III - PERIOD AND TIMING

1. **Periodicity**
   Annual

2. **Reference period**
   30 September

3. **Availability**
   In principle, two years (more at present)

IV - INFORMATION AVAILABLE

1. **Data available**
   1973-76

2. **Publications**
   -

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Council Directive 72/221/EEC of 6 June 1972

2. **Decision of working group**
   -

VI - SERVICE RESPONSIBLE

Division C2: Industrial structure, transport and services statistics

Structure and activity of enterprises in wholesale and retail trade
(Fiche No 9)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry addressed to all enterprises

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees/self-employed/family workers

(b) *Economic activity*
NACE 3 digit (activity of the enterprise)

(c) *Hours of work*
Number of part-time workers

(d) *Personal characteristics*
Sex: yes
Age: no

II - REGIONAL DISTRIBUTION

Level I

III - PERIOD AND TIMING

1. **Periodicity**
Annual or two-yearly except for certain distributions (sex, regions, regime of work) for which a periodicity of several years is proposed for the present

2. **Reference period**
End-September

3. **Availability**
Two years or more

IV - INFORMATION AVAILABLE

1. **Data available**
1978-79 (not yet available)

2. **Publications**
-

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
-

2. **Decision of working group**
Finalization of this new inquiry

VI - SERVICE RESPONSIBLE

Division C2: Industrial structure, transport and service statistics

Structure and activity of enterprises in transport

(Fiche No 10)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
Inquiry directed to all enterprises

2. **Tabulations concerning employment**
(a) *Category of persons*
Employees/self-employed/family workers

(b) *Economic activity*
NACE 3-digit (based on the activity of the enterprise)

(c) *Hours of work*
-

(d) *Personal characteristics*
Sex: yes (periodicity, several years)
Age: no

II - REGIONAL DISTRIBUTION

-

III - PERIOD AND TIMING

1. **Periodicity**
Annual

2. **Reference period**
   31 December on annual average

3. **Availability**
   Two years or more

IV - INFORMATION AVAILABLE

1. **Data available**
   1978 (not yet ready)

2. **Publications**
   -

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -

2. **Decision of working group**
   Finalization of this new inquiry

VI - SERVICE RESPONSIBLE

Division C2: Industrial structures, statistics of transport and services

Harmonized statistics of employees in employment

(Fiche No 11)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiries directed to enterprises or establishments or on the processing of administrative documents (social security)

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees

   (b) *Economic activity*
   Economic activities according to NACE classes 0 to 9

   (c) *Hours of work*
   -

   (d) *Personal characteristics*
   Sex: yes
   Age: -

II - REGIONAL DISTRIBUTION

Level II

III - PERIOD AND TIMING

1. **Periodicity**
   Annual

2. **Reference period**
   End-March

3. **Availability**
   Nine months after reference data

IV - INFORMATION AVAILABLE

1. **Data available**
   Industry: since 1975
   Services: since 1977

2. **Publications**
   Publication: 'Employment and unemployment'
   Statistical bulletin: 'Employment and unemployment'

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -

2. **Decision of working group**
   'Employment statistics' of 21 May 1976

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistics

Harmonized statistics of foreign workers

(Fiche No 12)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Estimates based on different sources:
   - Household surveys
   - Surveys directed to enterprises or establishments
   - Statistics based on the processing of administrative documents

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Foreign employees at work
   and
   First entry into employment

   (b) *Economic activity*
   NACE 2 digit

   (c) *Hours of work*
   -

   (d) *Personal characteristics*

Sex:	yes
Age:	yes
Nationality:	yes

II - REGIONAL DISTRIBUTION

Level II

III - PERIOD AND TIMING

1. **Periodicity**
   Annual

2. **Reference period**
   Stock: end-March
   Flow: year

3. **Availability**
   Nine months after reference date

IV - INFORMATION AVAILABLE

1. **Data available**
   Still very incomplete

2. **Publications**
   -

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Regulation (EEC) No 311/76 of the Council of 9 February 1976

2. **Decision of working group**
   Start of regular transmission following the decision of the working group 'Statistics of Foreign Workers' of 21 January 1981

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistics

Employment of manual workers according to the inquiry on earnings in agriculture

(Fiche No 13)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry directed to undertakings with permanent employees
2. **Tabulations concerning employment**
   (a) *Category of persons*
   Permanent employees
   (b) *Economic activity*
   NACE 01
   (c) *Hours of work*
   Number of hours
   (d) *Personal characteristics*
   Sex: yes
   Age: groups

II - REGIONAL DISTRIBUTION

Yes (8 regions in the Federal Republic of Germany and France, 11 in Italy and UK, 3 in Belgium, 4 in the Netherlands)

III - PERIOD AND TIMING

1. **Periodicity**
   Annual: 1980
   Bi-annual: from 1982
2. **Reference period**
   September, October, November
3. **Availability**
   ± one year

IV - INFORMATION AVAILABLE

1. **Data available**
   1974-80
2. **Publications**
   Social statistics series:

5-1975	Earnings in agriculture 1974
1976	Earnings in agriculture 1975
1977	Earnings in agriculture 1976
1-1979	Hourly earnings - Working hours (1977 inquiry)
2-1979	Hourly earnings - Working hours (1978 inquiry)
2-1980	Hourly earnings - Working hours (1979 inquiry)

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Regulation of the Council (inquiry 1974-80)
   Council Directive (as from 1982 inquiry)
2. **Decisions of working group**
   -

VI - SERVICE RESPONSIBLE

Division B2: Wages, incomes and social protection

Statistics of short-term trends in industry, building and civil engineering

(Fiche No 14)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry directed to enterprises or establishments; for building, possibly data from administrative sources.
   Enterprises of 20 persons or over

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employed/workers

   (b) *Economic activity*
   Industry division 1 to 4 of NACE
   Building, civil engineering: Division 5 of NACE

   (c) *Hours of work*
   Volume of work performed (number of hours worked by the manual workers)

   (d) *Personal characteristics*
   Sex: no
   Age: no

II - REGIONAL DISTRIBUTION

No

III - PERIOD AND TIMING

1. **Periodicity**
   At least quarterly, possibly monthly

2. **Reference period**
   Not specified in the directive

3. **Availability**
   Three months after the reference period

IV - INFORMATION AVAILABLE

1. **Data available**
   Industry: since the first quarter of 1973
   Building, civil engineering: since the fourth quarter of 1978

2. **Publications**
   Industry: published in 'Short-term industrial indicators' (monthly)
   Building and civil engineering: will be incorporated in the same bulletin for 1982

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Council Directive of 30 May 1972 concerning the organization of coordinated statistical inquiries of short-term trends in industry and crafts (72/211/EEC - OJ L 128 of 3. 6. 1972)

   Council Directive of 13 February 1978 concerning the establishment of coordinated statistics of short-term trends in building and civil engineering (78/166/EEC - OJ L 52 of 23. 2. 1978)

VI - SERVICE RESPONSIBLE

Division C3: Short-term industrial statistics

Labour costs inquiry
(Fiche No 15)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry addressed to enterprises or establishments in industry, distribution, banking and insurance with 10 or more employees

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees/manual workers/salaried staff

   (b) *Economic activity*
   NACE 1-5: 2 digits
   NACE 61, 64/65, 81 and 82: certain 3-digit subdivisions

   (c) *Hours of work*
   Number of hours per year (different definitions for manual workers and salaried staff)

   (d) *Personal characteristics*
   Sex: yes
   Age: -

II - REGIONAL DISTRIBUTION

Industry: level I
Services: -

III - PERIOD AND TIMING

1. **Periodicity**
   Three years

2. **Reference period**
   Year

3. **Availability**
   About two years

IV - INFORMATION AVAILABLE

1. **Data available**
   Industry: 1966, 1969, 1972, 1974, 1975, first results 1978, complete publication in preparation
   Services: 1974, 1978

2. **Publication**
   Social statistics - 1975 (Industry 1972-75)
   1977 (Insurance, banking and commerce 1974)
   1977/1979 (Industry 1975)

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Council Regulation No (EEC) 101/66 (Industry 1966)
   Council Regulation No (EEC) 1899/68 (Industry 1969)
   Council Regulation No (EEC) 2053/69 (Services 1970)
   Council Regulation No (EEC) 2259/71 (Industry 1972)
   Council Regulation No (EEC) 3192/75 (Insurance, banking, distribution 1974)
   Council Regulation No (EEC) 328/75 (Industry 1975)
   Council Regulation No (EEC) 494/78 (Industry + A, B, C 1978)

2. **Decisions of working groups**
   -

VI - SERVICE RESPONSIBLE

Division B2: Wages, incomes and social protection

Structure of earnings inquiry
(Fiche No 16)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry addressed to enterprises or establishments in industry, distribution, banking and insurance with 10 or more employees

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees/manual workers/salaried staff

   (b) *Economic activity*
   NACE 1-5: 2 digits
   NACE 61, 64/65, 81 and 82: certain 3-digit sub-divisions

   (c) *Hours of work*
   Number of hours

   (d) *Personal characteristics*

Sex:	yes
Age:	yes
Qualifications:	four groups

II - REGIONAL DISTRIBUTION

Level I

III - PERIOD AND TIMING

1. **Periodicity**
   Six to eight years

2. **Reference period**
   October of the reference year 1972, 1974 and 1978

3. **Availability**
   About two years

IV - INFORMATION AVAILABLE

1. **Data available**

Industry:	1966 and 1972 (1978 in preparation)
Distribution, banking, insurance:	1974 (1978 in preparation

2. **Publication**

Industry:	1972 (Social statistics - Special series 13 volumes)
Banking and distribution:	1974 (Special series 10 volumes)
Industry, distribution, banking and insurance:	1978/79 (in preparation

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Council Regulation No (EEC) 188/64 (Industry 1966)
   Council Regulation No (EEC) 2395/71 (Industry 1972)
   Council Regulation No (EEC) 178/74 (Distribution, banking, insurance 1974)
   Council Regulation No (EEC) 495/78 (Industry, distribution, banking and insurance 1978)

2. **Decisions of working group**
   -

VI - SERVICE RESPONSIBLE

Division B2: Wages, incomes and social protection

Employment in ECSC Industries

Coal and iron ore mining and steel-making according to the European Coal and Steel Community Treaty

(Fiche No 17)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Inquiry addressed to enterprises or establishments, the production of which is covered by the ECSC Treaty

   Data are prepared for the Commission by the trade organizations (except for steel and iron ore in the Federal Republic of Germany).

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Employees/manual workers/ salaried staff/apprentices

   (b) *Economic activity*

Coal mining	(ECSC) NACE 111
Iron ore mining	(ECSC) NACE 211
Steel industry	(ECSC) NACE 221

   (c) *Hours of work*
   Monthly data for conventional hours, hours actually worked and hours lost by manual workers and salaried staff in the ECSC steel industry

   (d) *Personal characteristics*

Sex:	no
Age:	yes
Nationality:	yes

II - REGIONAL DISTRIBUTION

Coal: coalfields
Steel: NUTS II regrouped for confidentiality

III - PERIOD AND TIMING

1. **Periodicity**
   Monthly, quarterly and annual, depending on the nature of employment

2. **Reference period**
   Stock: end of month
   Flows: monthly

3. **Availability**
   Rapid statistics complying with Commission Decision 1870/75/ECSC on the 25th of the month with a forecast for the following month
   Other data three months after the reference period

IV - INFORMATION AVAILABLE

1. **Data available**
   1955-81

2. **Publications**
   Energy statistics (coal)
   Steel statistics
   Employment and unemployment
   Bulletin - Employment and unemployment
   Rapid information (monthly)

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   Articles 46 and 47 of the ECSC Treaty
   Commission Decision 1870/75/ECSC of 17 July 1975 on the evolution of employment in the ECSC steel industry

2. **Decision of working group**
   Revision by the decision of the 'Employment in the ECSC steel industry' working group, 19/20 March 1979

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistics

Number of unemployed registered at public employment offices
(Fiche No 18)

I - CONTENT OF THE STATISTICS

1. **Method and field of inquiry**
   Count of number of unemployed registered at public employment offices (results of administrative operations)

2. **Tabulations concerning employment**
   (a) *Category of persons*
   Persons registered as seeking employment, not already having a job and available immediately for work

   (b) *Economic activity*
   National nomenclature for former branch of activity

   (c) *Hours of work*
   -

   (d) *Personal characteristics*

Sex:	yes
Age:	yes
Occupation:	national nomenclature

II - REGIONAL DISTRIBUTION

Level II

III - PERIOD AND TIMING

1. **Periodicity**
   Monthly or half-yearly

2. **Reference period**
   End of month

3. **Availability**
   15-18 days for monthly figures
   2-3 months for half-yearly figures

IV - INFORMATION AVAILABLE

1. **Data available**
   Continuous series from 1974

2. **Publications**
   Monthly bulletin 'Unemployment'
   Statistical bulletin 'Employment and unemployment'
   Publication 'Employment and unemployment'
   'Definitions of registered unemployment' (in preparation)

V - BASIS OF COMMUNITY STATISTICS

1. **Community law**
   -

2. **Decision of working group**
   Decision in principle in 1976. Revision and extension of transmission decided in June 1979

VI - SERVICE RESPONSIBLE

Division B1: Population, employment, education and general social statistics

List of participants

CHAIRMAN:	Mr J. SEXTON, Economic and Social Research Institute, Dublin
SECRETARIAT:	Miss H. FÜRST, assisted by Mr R. WALKER and Mr H. KLOPPPENBURG
SECRETARY:	Mrs A. THEISEN, assisted by Miss MINGUZZI
RAPPORTEUR:	Mr H. WERNER, Institut für Arbeitsmarkt- und Berufsforschung, Nürnberg

I - GOVERNMENT EXPERTS

1. Member States

BR DEUTSCHLAND

Statistisches Bundesamt	Mr L. HERBERGER Mr H. L. MAYER
Bundesministerium für Arbeit und Sozialordnung	Mr W. SCHWABE
Bundesanstalt für Arbeit (Unterabteilung Statistik)	Mr W. LANG

FRANCE

Institut National de la Statistique et des Etudes Economiques (INSEE)	Mr B. GRAIS Mr O. MARCHAND
Ministère du Travail (Service Statistique)	Mr T. LACROIX
Agence Nationale pour l'Emploi	Mr G. VANDERPOTTE

ITALIA

Istituto Centrale di Statistica (ISTAT)	Mr I. SANETTI Mr C. MORIANI
Ministerio del Lavoro e della Previdenza Sociale (Direzione Generale collocamento manodopera)	Mr T. ZEULI Mr A. TIBALDI

NEDERLAND

Centraal Bureau voor de Statistiek (CBS)	Mr A. LEENMAN Mr C. G. VERHAGE (rapporteur) Mr W. LEUNIS (rapporteur)
Ministerie van Sociale Zaken	Mr H. DE WOLF Mr W. VIS

BELGIQUE

Institut National de Statistique	Mr A. JURISSE
Ministère de l'Emploi et du Travail	Mr A. VERLINDEN Mr F. SZABO Mrs G. FRANSEN
Office National de l'Emploi	Mr E. WILQUOT

LUXEMBOURG

Service Central des Statistiques et des Etudes Economiques (STATEC)	Mr R. WEIDES Mr R. KERSCHEN-MEYER Mr A. MEYER Mr J. LANGERS
Ministère du Travail	Mr E. DORNSEIFFER
Administration de l'Emploi	Mr C. BICHELER

UNITED KINGDOM

Office of Population Censuses and Surveys (OPCS)	Mr M. BRADLEY
Department of Employment	Mr B. A. WAINEWRIGHT Mr H. W. DAVIS
Manpower Services Commission	Mr A. M. OLIVER

IRELAND

Central Statistics Office (CSO)	Mr F. EMBLETON Mr D. GARVEY
Ministry of Labour	Mr P. FINLEY

DANMARK

Danmarks Statistik	Mr P. JENSEN Mr P. H. LARSEN
Arbejdsdirektorat (Directorate of Labour)	Mr F. KUEHN PEDERSEN

ELLAS

National Statistical Office	Mr E. HADJIPANAYOTOU Mr G. KONTOULIS
Ministry of Labour	Mrs A. ASSIMA-KOPOULOU Mr A. BOUGAS

2. Other countries

PORTUGAL

Instituto Nacional de Estatistica	Mr J. L. FERREIRA SARAIVA Mrs G. LOPES
Ministry of Labour	Mr J. A. SOUSA FIALHO Mr F. FERRO

CANADA

Statistics Canada	Mr D. A. WORTON Mr I. MACREDIE (rapporteur)

II - REPRESENTATIVES OF SOCIAL PARTNERS

1. Union of Industries of the European Community

Mr F. CASTIN (Secretariat)
Mr B. GRAF PÜCKLER (BR Deutschland)
Mr P. SAUVAIN (France)
Mr M. PAGANI (Italia)

2. European Trade Union Confederation

Mr C. SCHESTER (France)
Mr G. GRINBERG (Belgique)
Mr J. M. BEGUIN (Belgique)
Mr M. O'RIORDAN (Ireland)
Mr M. GEORGIOU (Ellas)
Mr P. SIGNORELLI (Italia)

III - INDEPENDENT EXPERTS

Mr W. KARR	Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit	Nürnberg
Mr L. REYHER (rapporteur)	Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit	Nürnberg
Mr J. WARNKEN	Rheinisch-Westfälisches Institut für Wirtschaftsforschung	Essen
Mr M. FRACHEBOUD	Université Paris IX-Dauphine/Travail et Société	Paris

Mr J. ZIGHERA (rapporteur)	Université Paris Nanterre	Paris
Mr R. BRUNETTA	Università, Istituto di Statistica	Venezia
Mr M. DI PALMA	Università, Facoltà di Economia e Commercio	Perugia
Mr R. M. LINDLEY	Manpower Research Group, University of Warwick	Coventry
Mr R. J. TARLING	Department of Applied Economics, University of	Cambridge
Mr G. McLEOD	Gwilym JENKINS & Partners Ltd	Lancaster
Mr B. WALSH	University College	Dublin
Mr A. MADDISON (rapporteur)	University of Groningen	Thourotte

IV - OBSERVERS

1. **International organizations**

Organization for Economic Cooperation and Development	Mr J. EVANS
International Labour Organization (ILO)	Mr R. TURVEY Mr F. MEHRAN

2. **Others**

Université Paris-Nanterre	Mrs. F. LARBRE
Institut Luxembourgeois de Recherche	Mr L. MEWIS
EIM, Nederland	Mr A. NIJSEN

V - REPRESENTATIVES OF COMMISSION POLICY SERVICES

DG II	Economic and Financial Affairs	Mr A. CHAPMAN Mr A. CONRUYT Mr G. JUNIOR Mr P. ZANGL
DG III	Internal Market and Industrial Affairs	Mr S. GOSPAGE
DG V	Employment, Social Affairs and Education	Mr T. BÖCK Mr C. JANSSENS Mr J. MORLEY Mr R. TAVITIAN Mr D. WHITE
DG XVI	Regional Policy	Mr B. F. McNAMARA Mr P. SMITH

VI - STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES

Mr Aage D. de la COUR, Director-General
Mr C. W. CLARKE
Mr D. HEATH

Directorate A: General statistics, statistical methods and liaison activities

Mr P. ERBA, Director	Mr A. CHANTRAINE	Mr R. SALVAT
	Mr L. JENSEN	Mrs M. A. FRANCHI

Directorate B: Demographic and social statistics

Mr D. HARRIS, Director	Mrs H. FÜRST
Mr W. VAN DER WEERDEN	Mr G. A. LOHMANN

Unit B1:

Mr J. KNAGGS	Mr M. BEZIKOFER
Mr R. WALKER	Mr H. J. NÖRENBERG
Mr B. LANGEVIN	Mr F. BERARDI
Mr H. KLOPPENBURG	Mr A. THIERRY

Unit B2:

Mr K. LÖNING	Mr M. DE KIMPE

Directorate C: Industrial, environment and services statistics

Mr V. SCHETGEN

Directorate D: Agriculture, forestry and fisheries statistics, energy

Mr E. L. SNOWDON


OFFICE FOR OFFICIAL PUBLICATIONS
OF THE EUROPEAN COMMUNITIES
L-2985 Luxembourg

ISBN 92-825-3260-7